



DEPARTMENT OF
ECOLOGY
State of Washington

Draft Sediment Management Standards (SMS) Rule Proposed Amendments

Chapter 173-204 WAC

Review Version

August 15, 2012

Contact Information

This report is available on the Department of Ecology's website at www.ecy.wa.gov/programs/tcp/regs/SMS/2012/proposedRule.html

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Toxics Cleanup Program
Washington State Department of Ecology
Olympia, Washington

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Summary of Sediment Management Standards (SMS) Rule Proposed Amendments

This document contains the proposed SMS rule amendments and was developed as a “reader friendly” version of the official proposed rule amendments. It differs from the official version because it includes the entire rule (both revised and unrevised sections) and reflects the actual section numbers that have been changed. Ecology recommends reviewers use this version for submitting public comments. The reader can find the official copy of the proposed rule at:

www.ecy.wa.gov/programs/tcp/regs/SMS/2012/proposedRule.html

The SMS rule revisions are focused on Part II Definitions and Part V of the Sediment Management Standards (SMS) rule. The document includes the following proposed amendments:

Section 200 Definitions: Definitions have been added to clarify existing terms or existing definitions and define new terms. The following definitions have been added or revised:

Definitions added to clarify existing terms:

Active cleanup action
Anthropogenic
Applicable local, state and federal laws
Beneficial reuse
Biologically active zone
Cleanup screening level
Cleanup action
Contaminant
Department
Enhanced natural recovery
Include
Natural recovery
Non-anthropogenically affected
Sediment
Sediment cleanup objective
Sediment cleanup standard
Sediment quality standard

Existing definitions clarified:

Acute
Best management practices
Bioassay
Contaminated sediment
Sediment cleanup unit
Sediment recovery zone
Surface sediment

New definitions to define new terms:

Natural background
Point of compliance
Practical quantitation limit
Regional background
Sediment cleanup level
Technically possible

Section 500 - Sediment cleanup decision process and policies: This section has been revised to clarify the cleanup decision process and the department's thinking on how to conduct cleanup under the paradigm of widespread contamination of ubiquitous, bioaccumulative chemicals from numerous sources. The changes include:

- Clarification on establishing site units and approving partial and final settlements.
- Process for settling cleanup liability and options for addressing recontamination of a cleaned up site.
- Clarification on cleanup timeframes.
- Emphasis on source control measures.
- Part V promulgation under MCTA authority for cleanup purposes.

Section 520 - Cleanup screening levels criteria (New section -562):

- Re-titled: “**Sediment cleanup standards based on protection of the benthic community in marine and low salinity sediment**”.
- Cleanup screening levels criteria section moved to new section -562 to be incorporated into the cleanup screening level/sediment cleanup objective two tier framework.
- Removed the human health narrative and added human health criteria to new section - 561.
- The numeric and biological numeric criteria were not changed.

Section -550 Types of cleanup authority (Now section -540):

- “Voluntary cleanup” changed to “Other party initiated cleanup” to reflect the reality that sediment cleanups cannot be done without an agency permit and oversight. Thus by definition under MTCA, they are not independent or voluntary cleanups.
- “Partial cleanup” sub section removed and replaced with text in -500(2)(b) “Partial settlements”.

Section -560 Cleanup Study (Now section -550):

- Re-titled “**Remedial investigation and feasibility study**”
- This section was revised to focus on the content required to develop a remedial investigation and feasibility study.
- The requirements for remedy selection were moved to new section -570 Selection of cleanup actions.
- The requirements for sediment recovery zones moved to Section -590 Sediment recovery zones.
- Terminology was revised to harmonize with MTCA.
- Added MTCA requirements to the SMS requirements to develop a remedial investigation and feasibility study work plan and report.

Section -570 Sediment cleanup standards (Now section -560):

- Re-titled “**Sediment Cleanup Standards – General Requirements**”.
- The existing two tier framework of an upper and lower tier of allowable concentrations used to determine a cleanup standard was maintained.
- Includes a two tier framework for establishing cleanup standards for protection of human health, the benthic community, and higher trophic level species.
- The section also incorporates background sediment concentrations and practical quantitation limits into the two tier framework.
- Two types of background are included in the two tier framework: Natural and regional.
- The term “sediment quality standard” replaced with the existing term “sediment cleanup objective” which applies to Part V.
- The term “minimum cleanup level” replaced with “cleanup screening level”.
- These term changes were necessary to separate Part V terminology from Parts 1 – IV. This is due to Ecology’s decision to promulgate Part V under MTCA authority only.
- Changed the criteria for establishing a cleanup standard from “cost, technical feasibility, and net environmental benefit” to “technical possibility and adverse environmental impact”.
- Clarified how cleanup standards were establishing between the Sediment Cleanup Objective and Cleanup Screening Level.

- Clarified that attainment of the cleanup standard can result in a final cleanup.
- See Figure 1 for establishing sediment cleanup standards.

New sections added to accompany -560 “Sediment cleanup standards – General requirements”:

- **Section-561: “Sediment cleanup standards based on protection of human health”.**
 - This replaces the narrative standard for protection of human health from original Section -520 and applies to Part V only.
 - Narrative human health standards in Parts III and IV remain and were not changed.
 - Additions to Section -561 include:
 - Risk levels.
 - How to incorporate background concentrations.
 - Risk policies section including:
 - Reasonable maximum exposure scenario based on tribal fish consumption rate patterns added.
 - EPA toxicity parameters.
 - Development of site specific fish consumption rates.
 - Use of tissue chemistry to evaluate compliance and screen chemicals of concern.
- **Section -562: “Sediment cleanup standards based on protection of the benthic community in marine and low salinity sediment”.**
 - This language is from Section -520.
 - It has been moved into this section for clarity.
 - The human health narrative standard has been removed.
 - The numeric and chemical benthic criteria have not been changed.
- **Section -563: “Sediment cleanup standards based on protection of the benthic community in freshwater sediment”.**
 - This section replaces the freshwater narrative standard in Part V only. Narrative standards in Parts III and IV remain.
 - Language has been added to include numeric biological and chemical cleanup criteria consistent with the current marine benthic criteria framework in new section -562.

- This criteria was developed to be protective of the benthic community and does not include bioaccumulative effects to human or ecological receptors.
- **Section-564: “Sediment cleanup standards based on protection of higher trophic level species”.** This language is new to address risks to higher trophic levels species from sediment contamination. It includes a general process of identifying bioaccumulative chemicals and when an ecological risk assessment is necessary.

Section -580 Cleanup action decision (Now section -570):

- Re-titled “**Selection of cleanup actions**”.
- This section was revised to focus on the requirements that must be met to evaluate alternatives and select a preferred remedy. MTCA “permanent to the maximum extent practicable” provision was added.
- Cleanup action decisions language was moved to new section -580.
- Remedial investigation/feasibility study content language was moved to section -550.
- Terminology has been revised to harmonize with MTCA.
- MTCA remedy selection requirements were added to the current SMS requirements.
- The MTCA “disproportionate cost” and SMS “cost effectiveness” terms and concepts have been integrated.
- The SMS “cost, technical feasibility, and net environmental effects” provision for determining sediment cleanup standards and remedy selection were integrated with the MTCA remedy selection provisions. Establishing a cleanup standard between the two tiers is now based on “technical possibility” and “adverse environmental impacts”.
- Final liability settlements can be made if the cleanup standard is met.

Section -580 Cleanup action decision:

- New section added to separate the cleanup action decision from development of the remedial investigation and feasibility and the remedy selection process.
- Terminology was revised to harmonize with MTCA.
- Added MTCA requirements to the SMS requirements for cleanup action decisions.

Section -590 Sediment recovery zones:

- New language added to clarify requirements for establishing, approving, and maintaining a sediment recovery zone (SRZ).
- Requirements were added to be more consistent with section -415, Sediment Impact Zones.
- Requirements for a SRZ were changed. If site does not meet the cleanup standard (which can be above the sediment cleanup objective) within ten years, a SRZ may be issued and renewed every 10 years.

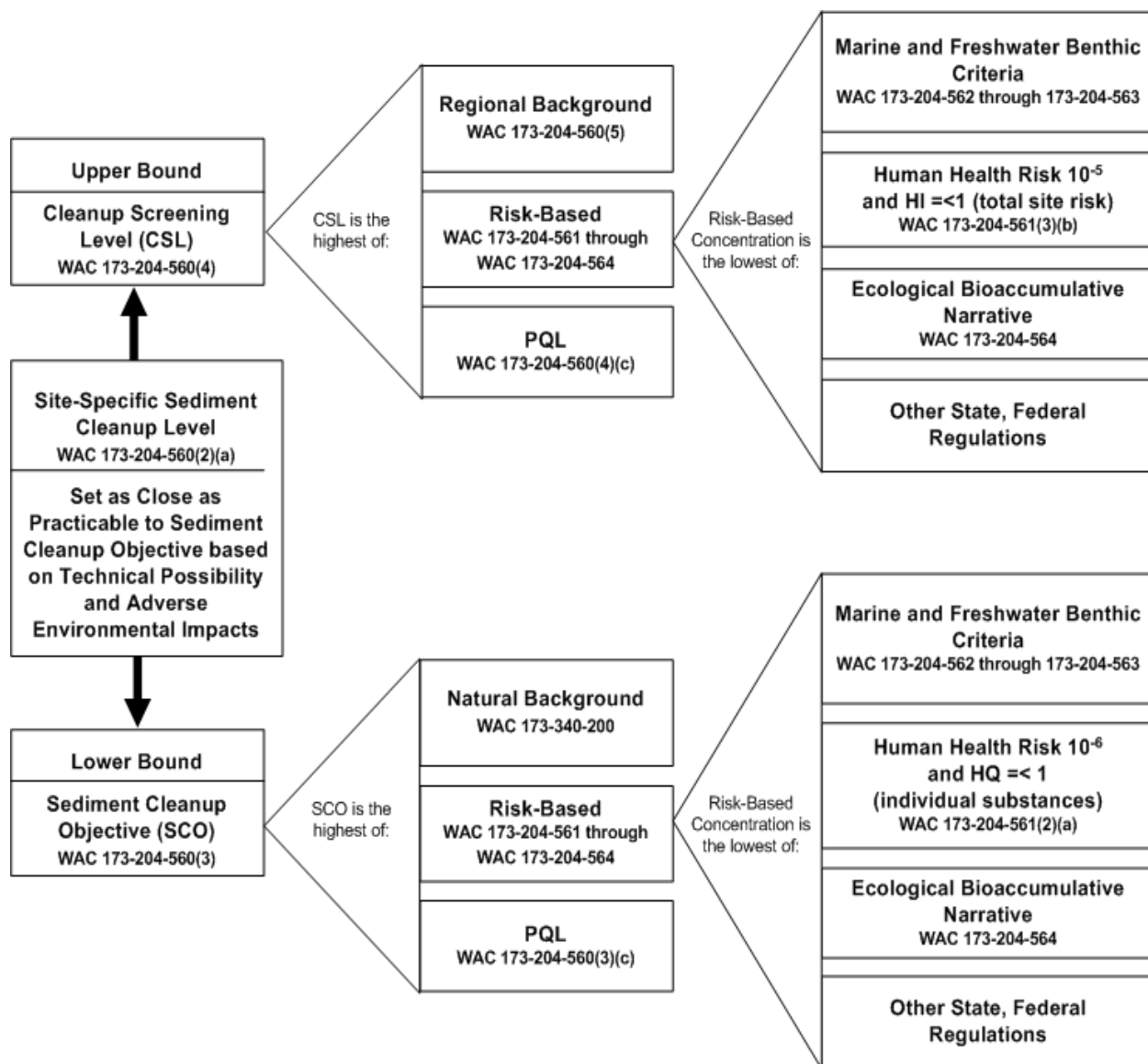


Figure 1. SMS two tier framework for establishing cleanup standards (WAC 173-204-560).

NOTE: The following rule language proposed to be deleted is shown with a ~~strikeout~~, proposed new language is shown in underlined black, and unrevised language is shown in black

Chapter 173-204 WAC

SEDIMENT MANAGEMENT STANDARDS

PART I -- GENERAL INFORMATION

- 173-204-100 Authority and purpose.
- 173-204-110 Applicability.
- 173-204-120 Antidegradation and designated use policies.
- 173-204-130 Administrative policies.

PART II -- DEFINITIONS

- 173-204-200 Definitions.¹

PART III -- SEDIMENT QUALITY STANDARDS

- 173-204-300 Purpose.
- 173-204-310 Sediment quality standards designation procedures.
- 173-204-315 Confirmatory marine sediment biological tests.
- 173-204-320 Marine sediment quality standards.
- 173-204-330 Low salinity sediment quality standards.
- 173-204-340 Freshwater sediment quality standards.
- 173-204-350 Sediment quality standards inventory.

PART IV -- SEDIMENT SOURCE CONTROL

- 173-204-400 General considerations.
- 173-204-410 Sediment quality goal and sediment impact zone applicability.
- 173-204-412 Marine finfish rearing facilities.

¹ Highlighted sections in the table of contents have been substantively revised

173-204-415 Sediment impact zones.

173-204-420 Sediment impact zone maximum criteria.

PART V -- SEDIMENT CLEANUP STANDARDS

173-204-500 Sediment cleanup decision process and policies.

173-204-510 Identifying sediment station clusters of potential concern.

173-204-520 Hazard assessment and site identification.

173-204-530 Evaluation and listing of sites.

173-204-540 Types of cleanup and authority.

173-204-550 Remedial investigation and feasibility study.

173-204-560 Sediment cleanup standards - General requirements.

173-204-561 Sediment cleanup standards based on protection of human health.

173-204-562 Sediment cleanup standards based on protection of the benthic community in
marine and low salinity sediment.

173-204-563 Sediment cleanup standards based on protection of the benthic community in
freshwater sediment.

173-204-564 Sediment cleanup standards based on protection of higher trophic level species.

173-204-570 Selection of cleanup actions.

173-204-580 Cleanup action decisions.

173-204-590 Sediment recovery zones.

PART VI -- SAMPLING AND TESTING PLANS/RECORDKEEPING

173-204-600 Sampling and testing plan standards.

173-204-610 Records management.

173-204-620 Severability.

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-100 Authority and purpose. (1) This chapter is promulgated under the authority of chapter 90.48 RCW, the Water Pollution Control Act; chapter 70.105D RCW, the Model Toxics Control Act; chapter 90.70 RCW, the Puget Sound Water Quality Authority Act; chapter 90.52 RCW, the Pollution Disclosure Act of 1971; chapter 90.54 RCW, the Water Resources Act of 1971; and chapter 43.21C RCW, the state Environmental Policy Act, to establish marine, low salinity and freshwater surface sediment management standards for the state of Washington.

(2) The purpose of this chapter is to reduce and ultimately eliminate adverse effects on biological resources and significant health threats to humans from surface sediment contamination by:

(a) Establishing standards for the quality of surface sediments;

(b) Applying these standards as the basis for management and reduction of pollutant discharges; and

(c) Providing a management and decision process for the cleanup of contaminated sediments.

(3) Part III, Sediment quality standards of this chapter provides chemical concentration criteria, biological effects criteria, human health criteria, and other toxic, radioactive, biological, or deleterious substances criteria which identify surface sediments that have no adverse effects, including no acute or chronic adverse effects on biological resources and no significant health

22 risk to humans, as defined in this regulation. The sediment quality standards provide a
23 regulatory and management goal for the quality of sediments throughout the state.

24 (4) The sediment criteria of WAC 173-204-320 through 173-204-340 shall constitute
25 surface sediment quality standards and be used to establish an inventory of surface sediment
26 sampling stations where the sediments samples taken from these stations are determined to pass
27 or fail the applicable sediment quality standards.

28 (5) Part IV, Sediment source control standards of this chapter shall be used as a basis for
29 controlling the effects of point and nonpoint source discharges to sediments through the National
30 Pollutant Discharge Elimination System (NPDES) federal permit program, state water quality
31 management permit programs, issuance of administrative orders or other means determined
32 appropriate by the department. The source control standards establish discharge sediment
33 monitoring requirements and criteria for establishment and maintenance of sediment impact
34 zones.

35 (6) Part V, Sediment cleanup standards of this chapter establishes administrative
36 procedural requirements and criteria to identify, screen, rank and prioritize, and cleanup
37 contaminated surface sediment sites. The sediment cleanup standards of WAC 173-204-500
38 through 173-204-590 shall be used pursuant to ~~((authorities))~~ authority established under
39 chapter~~((s 90.48 and))~~ 70.105D RCW.

40 (7) This chapter establishes and defines a goal of minor adverse effects as the maximum
41 level of sediment contamination allowed in sediment impact zones under the provisions of Part
42 IV, Sediment source control standards and as the cleanup screening levels for identification of

sediment cleanup sites and as the minimum cleanup levels to be achieved in all cleanup actions under Part V, Sediment cleanup standards.

(8) Local ordinances establishing requirements for the designation and management of marine, low salinity and freshwater sediments shall not be less stringent than this chapter.

Note: All codes, standards, statutes, rules or regulations cited in this chapter are available for inspection at the Department of Ecology, P.O. Box 47703, Olympia, Washington 98504-7703

[Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-100, filed 12/29/95, effective 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-100, filed 3/27/91, effective 4/27/91.]

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-110 Applicability. (1) The sediment quality standards of WAC 173-204-300 through 173-204-315, and 173-204-350, and the sediment cleanup standards of WAC 173-204-500 through 173-204-580 shall apply to all surface sediments.

(2) The sediment quality standards of WAC 173-204-320, 173-204-330, and 173-204-340 and the applicable sediment cleanup standards of WAC 173-204-560 shall apply to marine, low salinity and freshwater surface sediments, respectively.

(3) The source control standards of WAC 173-204-400 through 173-204-420 shall apply to each person's actions which exposes or resuspends surface sediments which exceed, or otherwise cause or potentially cause surface sediments to exceed, the applicable standards of WAC 173-204-320 through 173-204-340.

(4) The sediment recovery zone standards of WAC 173-204-590 shall apply to each person's cleanup action decision made pursuant to WAC 173-204-570 and 173-204-580 where the selected cleanup action leaves in place marine, low salinity, or freshwater sediments that exceed the applicable sediment ((quality)) cleanup standards of WAC ((173-204-320 through 173-204-340)) 173-204-560.

(5) The sediment quality standards of WAC 173-204-320 through 173-204-340 shall not apply:

(a) Within a sediment impact zone as authorized by the department under WAC 173-204-415; or

(b) Within a sediment recovery zone as authorized by the department under WAC 173-204-590; or

(c) To particulates suspended in the water column; or

(d) To particulates suspended in a permitted effluent discharge.

(6) Nothing in this chapter shall constrain the department's authority to make appropriate sediment management decisions on a case-specific basis using best professional judgment and latest scientific knowledge for cases where the standards of this chapter are reserved or standards are not available.

[Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-110, filed 3/27/91, effective 4/27/91.]

WAC 173-204-120 Antidegradation and designated use policies. (1) Antidegradation policy. The antidegradation policy of the state of Washington as generally guided by chapters 90.48 and 90.54 RCW, is applicable to any person's new or increased activity and shall apply to this chapter as follows:

(a) Existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to existing beneficial uses shall be allowed.

(b) No degradation of existing sediment quality shall be allowed of waters constituting an outstanding national resource, such as waters of national and state parks and scenic and recreation areas, wildlife refuges, and waters of exceptional recreational or ecological significance.

(c) Whenever surface sediments are of a higher quality (i.e., lower chemical concentrations or adverse biological response) than the criteria assigned to said sediments, the existing surface sediment quality shall be protected and waste and other materials and substances shall not be allowed to contaminate such sediments or reduce the existing sediment quality thereof, except in those instances where:

(i) It is clear, after satisfactory public participation and intergovernmental coordination, that overriding considerations of the public interest will be served;

(ii) All wastes and other materials and substances proposed for discharge that may contaminate such sediments are provided with all known, available and reasonable methods of prevention, control, and treatment and/or best management practices;

(iii) The reduction of existing surface sediment quality is authorized by the department; and

(iv) Existing beneficial uses are maintained and protected, and no degradation which would interfere with and/or become injurious to existing sediment beneficial uses and/or causes long-term, irreparable harm to the environment is allowed.

(2) Designated use policy. The policy of the department and the purpose of this chapter shall be to manage waste discharges and sediment quality so as to protect existing beneficial uses and move towards attainment of designated beneficial uses as specified in section 101 (a)(2) of the federal Clean Water Act (33 USC 1251, et seq.) and chapter 173-201 WAC, the Water quality standards for surface waters of the state of Washington. This policy is applicable to any person's existing or proposed actions which may affect surface sediment quality.

[Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-120, filed 3/27/91, effective 4/27/91.]

123 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

124

125 **WAC 173-204-130 Administrative policies.** The department shall implement this
126 chapter in accordance with the following policies:

127 (1) The department shall seek to implement, and as necessary modify this chapter to
128 protect biological resources and human health consistent with WAC 173-204-100(2). To
129 implement the intent of this subsection, the department shall use methods that accurately reflect
130 the latest scientific knowledge consistent with the definitions contained in WAC 173-204-200
131 ~~((14) and (15)))~~, as applicable.

132 (2) At the interface between surface sediments, groundwater or surface water, the
133 applicable standards shall depend on which beneficial use is or could be adversely affected, as
134 determined by the department. If beneficial uses of more than one resource are affected, the
135 most restrictive standards shall apply.

136 (3) It shall be the goal of the department to modify this chapter so that methods such as
137 confirmatory biological tests, sediment impact zone models, use of contaminated sediment site
138 ranking models, etc., continue to accurately reflect the latest scientific knowledge as established
139 through ongoing validation and refinement.

140 (4) Any person or the department may propose an alternate technical method to replace or
141 enhance the application of a specific technical method required under this chapter. Using best
142 professional judgment, the department shall provide advance review and approval of any
143 alternate technical method proposed prior to its application. Application and use of alternate
144 technical methods shall be allowed when the department determines that the technical merit of

the resulting decisions will improve the department's ability to implement and meet the intent of this chapter as described in WAC 173-204-100(2), and will remain consistent with the scientific intent of definitions contained in WAC 173-204-200 (~~((14) and (15))~~). The department shall maintain a record of the department's decisions concerning application for use of alternate technical methods pursuant to this subsection. The record shall be made available to the public on request.

(5) Intergovernmental coordination. The department shall ensure appropriate coordination and consultation with federally recognized Indian tribes and local, state, and federal agencies to provide information on and to implement this chapter.

(6) The department shall conduct an annual review of this chapter, and modify its provisions every three years, or as necessary. Revision to this chapter shall be made pursuant to the procedures established within chapter 34.05 RCW, the Administrative Procedure Act.

(7) Review of scientific information. When evaluating this chapter for necessary revisions, the factors the department shall consider include:

(a) New or additional scientific information which is available relating surface sediment chemical quality to acute or chronic adverse effects on biological resources as defined in WAC 173-204-200 (~~((14))~~) (2) and (~~((7))~~) (12);

(b) New or additional scientific information which is available relating human health risk to marine, low salinity, or freshwater surface sediment chemical contaminant levels;

(c) New or additional scientific information which is available relating levels of other toxic, radioactive, biological and deleterious substances in marine, low salinity, or freshwater

sediments to acute or chronic adverse effects on biological resources, or to a significant health risk to humans;

(d) New state or federal laws which have established environmental or human health protection standards applicable to surface sediment; or

(e) Scientific information which has been identified for addition, modification or deletion by a scientific review process established by the department.

(8) Public involvement and education. The goal of the department shall be to provide timely information and meaningful opportunities for participation by the public in the annual review conducted by the department under subsection (6) of this section, and any modification of this chapter. To meet the intent of this subsection the department shall:

(a) Provide public notice of the department's decision regarding the results of its annual review of this chapter, including:

(i) The department's findings for the annual review factors identified in subsection (7) of this section;

(ii) The department's decision regarding the need for modification of this chapter based on its annual review; and

(iii) Identification of a time period for public opportunity to comment on the department's findings and decisions pursuant to this subsection.

(b) Provide public notice by mail or by additional procedures determined necessary by the department which may include:

(i) Newspaper publication;

(ii) Other news media;

(iii) Press releases;

(iv) Fact sheets;

(v) Publications;

(vi) Any other method as determined by the department.

(c) Conduct public meetings as determined necessary by the department to educate and inform the public regarding the department's annual review determinations and decisions.

(d) Comply with the rule making and public participation requirements of chapter 34.05 RCW, the Administrative Procedure Act, for any revisions to this chapter.

(9) Test sediments evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 and/or the sediment impact zone maximum criteria of WAC 173-204-420 and/or the sediment cleanup (~~((screening levels criteria))~~) standards of WAC (~~((173-204-520))~~) 173-204-560 shall be sampled and analyzed using the Puget Sound Protocols or other methods approved by the department. Determinations made pursuant to this chapter shall be based on sediment chemical and/or biological data that were developed using an appropriate quality assurance/quality control program, as determined by the department.

(10) The statutory authority for decisions under this chapter shall be clearly stated in the decision documents prepared pursuant to this chapter. The department shall undertake enforcement actions consistent with the stated authority under which the action is taken. The process for judicial review of these decisions shall be pursuant to the statutes under which the action is being taken.

208 (11) When the department identifies this chapter as an applicable, or relevant and
209 appropriate requirement for a federal cleanup action under the Comprehensive Environmental
210 Response, Compensation and Liability Act, the department shall identify the entire contents of
211 this chapter as the appropriate state requirement.

212

213 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-130, filed 12/29/95, effective
214 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
215 91-08-019 (Order 90-41), § 173-204-130, filed 3/27/91, effective 4/27/91.]

PART II DEFINITIONS

AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-200 Definitions. In cases where a definition does not exist in this chapter, the definitions in chapter 173-340 WAC will apply unless the context indicates otherwise. For the purpose of this chapter, the following definitions shall apply:

(1) "Active cleanup action" means those engineered controls requiring physical construction to meet sediment cleanup standards. Active cleanup actions include dredging, capping, treatment, and enhanced natural recovery. Passive cleanup actions such as monitored natural recovery and institutional controls are not active cleanup actions for purposes of sediment cleanup only.

(2) "Acute" means measurements of biological effects using surface sediment bioassays conducted for time periods that are relatively short in comparison to the life cycle of the test organism. Acute effects may include mortality, larval abnormality, or other endpoints determined appropriate by the department.

~~((2))~~ (3) "Amphipod" means crustacean of the Class Amphipoda, e.g., Rhepoxynius abronius, Ampelisca abdita, Eohaustorius estuarius, or Hyaella azteca.

(4) "Anthropogenic" means created by humans or caused by human activity.

(5) "Applicable local, state and federal laws" means all legally applicable requirements and those requirements that the department determines, based on the criteria in WAC 173-340-710, are relevant and appropriate requirements.

~~((3))~~ (6) "Appropriate biological tests" means only tests designed to measure directly, or through established predictive capability, biologically significant adverse effects to the established or potential benthic or aquatic resources at a given location, as determined by rule by the department.

~~((4))~~ (7) "Beneficial uses" means uses of waters of the state which include ~~((but are not limited to))~~ use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

~~((5))~~ (8) "Beneficial reuse" means reuse of sediment, or a separated portion of the sediment (such as the gravel fraction), with low levels of contamination that utilizes the physical characteristics and properties of the sediment to replace another natural uncontaminated material without requiring use of engineered or institutional controls to protect human health or the environment. Examples of beneficial reuse include habitat restoration or enhancement, strip mine reclamation, landfill cover material, aggregate in asphalt or concrete, or use of organic fines in manufactured topsoil.

(9) "Best management practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface sediments of the state as approved by the department. BMPs ~~((also))~~ include

treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or water disposal, or drainage from raw material storage.

~~((6))~~ (10) "Bioassay" means a test procedure or biological assessment that measures the response of living plants, animals, or tissues to a sediment sample.

~~((7))~~ (11) "Biologically active zone" means the sediment depth determined by the department where the species critical to the function, diversity, and integrity of the benthic community are located. Metrics such as biomass and abundance may be used to define the vertical extent of the biologically active zone. These species can include endemic and keystone animals, plants, or other species. Abiotic factors such as groundwater upwelling, salt wedges, water temperature, dissolved oxygen, and hyporheic flow can affect the vertical distribution of organisms.

(12) "Chronic" means measurements of biological effects using sediment bioassays conducted for, or simulating, prolonged exposure periods of not less than one complete life cycle, evaluations of indigenous field organisms for long-term effects, assessment of biological effects resulting from bioaccumulation and biomagnification, and/or extrapolated values or methods for simulating effects from prolonged exposure periods. Chronic effects may include mortality, reduced growth, impaired reproduction, histopathological abnormalities, adverse effects to birds and mammals, or other endpoints determined appropriate by the department.

~~((8))~~ (13) "Cleanup action" means any actions taken at a sediment site or sediment cleanup unit to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove contaminated sediment to achieve sediment cleanup standards.

(14) "Cleanup screening level" means the maximum allowed concentration of any contaminant and level of biological effects permissible at the site or sediment cleanup unit per procedures in WAC 173-204-560(4) after completion of the cleanup action. Cleanup screening levels are also used to identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520.

(15) "Contaminant" means any hazardous substance or other toxic, radioactive, biological, or deleterious substance that does not occur naturally or occurs at greater than natural background levels.

(16) "Contaminated sediment" means ~~((surface))~~ sediments ~~((designated under the procedures of WAC 173-204-310 as))~~ exceeding the applicable sediment quality standards ~~((of))~~ in WAC 173-204-320 through 173-204-340 or the applicable criteria in WAC 173-204-560.

~~((9))~~ (17) "Control sediment sample" means a surface sediment sample which is relatively free of contamination and is physically and chemically characteristic of the area from which bioassay test animals are collected. Control sediment sample bioassays provide information concerning a test animal's tolerance for stress due to transportation, laboratory handling, and bioassay procedures. Control sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 or the applicable criteria in WAC 173-204-560.

~~((10))~~ (18) "Department" means the department of ecology.

~~((11))~~ (19) "Enhanced natural recovery" means a remedy that uses human intervention to accelerate the process of natural recovery. An example of enhanced natural recovery is the placement of a thin clean layer of sediment over an area of contaminated sediment to naturally

300 mix with the contaminated sediment and reduce the contaminant concentrations or toxicity
301 followed by a period of monitoring to determine the effectiveness.

302 (20) "Freshwater sediments" means surface sediments in which the sediment pore water
303 contains less than or equal to 0.5 parts per thousand salinity.

304 ~~((12))~~ (21) "Include" means included, but not limited to.

305 (22) "Low salinity sediments" means surface sediments in which the sediment pore water
306 contains greater than 0.5 parts per thousand salinity and less than 25 parts per thousand salinity.

307 ~~((13))~~ (23) "Marine finfish rearing facilities" ~~((shall))~~ means those private and public
308 facilities located within state waters where finfish are fed, nurtured, held, maintained, or reared
309 to reach the size of release or for market sale.

310 ~~((14))~~ (24) "Marine sediments" means surface sediments in which the sediment pore
311 water contains 25 parts per thousand salinity or greater.

312 ~~((15))~~ (25) "Minor adverse effects" means a level of effects that:

313 (a) Has been determined by rule by the department, except in cases subject to WAC 173-
314 204-110(6); and

315 (b) Meets the following criteria:

316 (i) An acute or chronic adverse effect to biological resources as measured by a
317 statistically and biologically significant response relative to reference in no more than one
318 appropriate biological test as defined in WAC 173-204-200~~((3))~~ (6); or

(ii) A statistically and biologically significant response that is significantly elevated relative to reference in any appropriate biological test as defined in WAC 173-204-200(~~((3))~~) (6); or

(iii) Biological effects per (b)(i) or (ii) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) and (ii) of this subsection; and

(c) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

~~((46))~~ (26) "Monitored natural recovery" means a form of natural recovery that includes regular monitoring of sediment quality, tissue, and biota to assess the effectiveness of natural recovery to restore sediment quality.

(27) "Natural background" means the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediment, and soil of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.

(28) "Natural recovery" means physical, chemical or biological processes that act, without human intervention, to reduce the toxicity or concentration of contaminated sediment. The most common form of natural recovery is the natural deposition of a layer of clean sediment over an area of contaminated sediment resulting in burial of contaminated sediment below the biologically active zone. The natural process of sediment mixing, and degradation of some contaminants, such as polycyclic aromatic hydrocarbons, can also contribute to natural recovery.

(29) "No adverse effects" means a level of effects that:

(a) Has been determined by rule by the department, except in cases subject to WAC 173-204-110(6); and

(b) Meets the following biological criteria:

(i) No acute or chronic adverse effects to biological resources as measured by a statistically and biologically significant response relative to reference in any appropriate biological test as defined in WAC 173-204-200(~~((3))~~) (6); and

(ii) No acute or chronic adverse biological effect per (b)(i) of this subsection as predicted by exceedance of an appropriate chemical or other deleterious substance standard, except where the prediction is overridden by direct biological testing evidence pursuant to (b)(i) of this subsection; and

(iii) Does not result in significant human health risk as predicted by exceedance of an appropriate chemical, biological, or other deleterious substance standard.

~~((17))~~ (30) "Nonanthropogenically affected" means not affected by humans or caused by human activities.

(31) "Other toxic, radioactive, biological, or deleterious substances" means contaminants which are not specifically identified in the sediment quality standards chemical criteria of WAC 173-204-320 through 173-204-340 (e.g., organic debris, tributyltin, DDT, etc.).

~~((18))~~ (32) "Person" means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, ~~((industry, private corporation, port district, special purpose district, irrigation district,))~~ unit of local government, state government agency, federal government agency, or Indian tribe ~~((, or any other entity whatsoever))~~.

~~((19))~~ (33) "Point of compliance" means the locations within a site or sediment cleanup unit where sediment cleanup levels must be met.

(34) "Practicable" means able to be completed in consideration of environmental effects, technical feasibility and cost.

~~((20))~~ (35) "Practical quantitation limit" means the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods. When the limit for an analytical method is higher than the concentrations based on protection of human health or the environment, the department may require the use of another method to lower the practical quantitation limit.

(36) "Puget Sound basin" or "Puget Sound" means:

(a) Puget Sound south of Admiralty Inlet, including Hood Canal and Saratoga Passage;

(b) The waters north to the Canadian border, including portions of the Strait of Georgia;

(c) The Strait of Juan de Fuca south of the Canadian border; and

(d) All the lands draining into these waters as mapped in water resources inventory areas numbers 1 through 19, set forth in water resources management program established pursuant to the Water Resources Act of 1971, chapter 173-500 WAC.

~~((21))~~ (37) "Puget Sound protocols" means *Puget Sound Estuary Program. 1986. As amended. Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound, U.S. Environmental Protection Agency, Region 10, Seattle, WA (looseleaf).*

~~((22))~~ (38) "Regional background" means the concentration of a contaminant within a department-defined geographic area that is primarily attributable to diffuse nonpoint sources, such as atmospheric deposition or storm water, not attributable to a specific source or release. Regional background is generally expected to be greater than or equal to natural background, and less than area background as that term is defined in WAC 173-340-200.

(39) "Reference sediment sample" means a surface sediment sample which serves as a laboratory indicator of a test animal's tolerance to important natural physical and chemical characteristics of the sediment, e.g., grain size, organic content. Reference sediment samples represent the nonanthropogenically affected background surface sediment quality of the sediment sample. Reference sediment samples cannot exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 or the applicable criteria of WAC 173-204-560.

~~((23))~~ (40) "Sediment" means particulate matter settled or present as particles on the bed or bottom of a body of water to which biota or humans may potentially be exposed, and the surface water is present in the water body for a minimum of six contiguous weeks on an annual basis and the sediment is located at or below the ordinary high water mark. Sediment includes

particulate matter located in the biologically active zone or exposed to the water column by human activity (e.g., dredging), pore water flux, or other hydrological or natural action.

(41) "Sediment cleanup level" means the concentration or level of biological effects for a contaminant in sediment that is determined by the department to be protective of human health and the environment under the authority of chapter 70.105D RCW. The sediment cleanup level is established in accordance with the requirements in WAC 173-204-560(2).

(42) "Sediment cleanup objective" means the goal for protection of human health and the environment and is established under the authority of chapter 70.105D RCW. The sediment cleanup objective is established in accordance with the requirements in WAC 173-204-560(3). Sediment cleanup objectives are also used to identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520.

(43) "Sediment cleanup standard" means a department approved chemical concentration, or level of biological effects, in sediment that must be met within a site or sediment cleanup unit. Establishing sediment cleanup standards requires specification of the following: The concentration or level of biological effects for a contaminant in sediment that is determined by the department to be protective of human health and the environment ("sediment cleanup levels"); the location on the site or sediment cleanup unit where those sediment cleanup levels must be attained ("points of compliance"); and additional regulatory requirements that apply to a cleanup action because of the type of action and/or the location of the site. These requirements are specified in applicable state and federal laws and are generally established in conjunction with the selection of a specific cleanup action.

(44) "Sediment impact zone" means an area where the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 are exceeded due to ongoing permitted or otherwise authorized wastewater, storm water, or nonpoint source discharges and authorized by the department within a federal or state wastewater or storm water discharge permit, or other formal department authorization.

~~((24))~~ (45) "Sediment quality standard" means chemical concentration criteria, biological effects criteria, other toxic, radioactive, biological, or deleterious substances criteria, and nonanthropogenically affected sediment quality criteria which are used to identify sediments that have no adverse effects on biological resources per procedures in WAC 173-204-320 through 173-204-340.

(46) "Sediment recovery zone" means an area ~~((where))~~ established by the department within a site or sediment cleanup unit where the department has determined cleanup actions cannot achieve the applicable sediment ((quality)) cleanup standards ((of WAC 173-204-320 through 173-204-340 are exceeded as a result of historical discharge activities, and authorized by the department as a result of a cleanup decision made pursuant to WAC 173-204-580, Cleanup action decision)) within ten years after the start of the cleanup action. Sediment recovery zones must meet the requirements in WAC 173-204-590 and be authorized by the department under WAC 173-204-580.

~~((25))~~ (47) "~~((Site))~~ Sediment cleanup unit((s))" means discrete subdivision(s) of ~~((an individual contaminated))~~ a sediment site ((that are being evaluated)) designated by the department for the purpose of ((establishing cleanup standards)) expediting cleanups. ((Site units are based on consideration of)) A sediment cleanup unit may be established based on unique ((locational)) chemical concentrations or parameters, environmental, spatial, or

contaminant source characteristics, or other ~~((conditions))~~ methods determined appropriate by the department, e.g., development related cleanups, cleanup under piers, cleanup in eelgrass beds, and cleanup in navigational lanes.

~~((26))~~ (48) "Surface sediments" ~~((or "sediment(s)"))~~ means ~~((settled particulate matter))~~ sediment(s) located in the ~~((predominant))~~ biologically active ~~((aquatic))~~ zone~~((;))~~ or exposed to the water column~~((. Sediment(s) also includes settled particulate matter exposed by human activity (e.g., dredging) to the biologically active aquatic zone or to the water column.~~

~~((27))~~ by human activity (e.g., dredging), pore water flux, or other hydrological or natural action.

(49) "Technically possible" means capable of being designed, constructed and implemented in a reliable and effective manner, regardless of cost.

(50) "Test sediment" means a sediment sample that is evaluated for compliance with the sediment quality standards of WAC 173-204-320 through 173-204-340 ~~((and/or))~~, the sediment impact zone maximum criteria of WAC 173-240-420, ~~((and/))~~ or the ~~((cleanup screening levels))~~ applicable criteria of WAC ~~((173-204-520))~~ 173-204-560.

[Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-200, filed 12/29/95, effective 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-200, filed 3/27/91, effective 4/27/91.]

PART III**SEDIMENT QUALITY STANDARDS**

WAC 173-204-300 Purpose. The sediment quality standards of WAC 173-204-320 through 173-204-340 include chemical concentration criteria, biological effects criteria, human health criteria, other toxic, radioactive, biological, or deleterious substances criteria, and nonanthropogenically affected sediment quality criteria which are used to identify sediments that have no adverse effects on biological resources, and correspond to no significant health risk to humans. Designation determinations using the sediment quality standards of WAC 173-204-320 through 173-204-340 shall be conducted as stipulated in WAC 173-204-310, Sediment quality standards designation procedures.

[Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-300, filed 3/27/91, effective 4/27/91.]

WAC 173-204-310 Sediment quality standards designation procedures. Any person may use these procedures to determine a sediment's designation using the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. Any person who designates test sediments using the procedures of this section shall meet the sampling and testing plan requirements of WAC 173-204-600 and records management requirements of WAC 173-204-610. Test sediments designated using the procedures of this section shall be sampled and analyzed using the Puget Sound protocols or other methods approved by the department, and shall use an appropriate quality assurance/quality control program, as determined by the department. A sediment sample that passes the initial designation procedures is designated as complying with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, until such time as any person or the department confirms the sediment designation as failing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. A sediment sample that fails the initial designation procedures is designated as not complying with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, until such time as any person or the department confirms the sediment designation as passing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340. A sediment sample that passes or fails the confirmatory designation procedures is designated as such under the procedures of WAC 173-204-310. Sediments shall be designated with the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 as follows:

(1) Initial designation. Sediments that have been chemically analyzed for the applicable chemical concentration criteria of WAC 173-204-320 through 173-204-340 shall be designated as follows:

(a) Sediments with chemical concentrations equal to or less than all the applicable chemical and human health criteria are designated as having no adverse effects on biological resources, and not posing a significant health threat to humans, and pass the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(b) Sediments with chemical concentrations which exceed any one applicable chemical or human health criterion in WAC 173-204-320 through 173-204-340 are designated as having adverse effects on biological resources or posing significant human health threats, and fail the sediment quality standards of WAC 173-204-320 through 173-204-340, pending confirmatory designation.

(2) Confirmatory designation. Any person or the department may confirm the designation of sediments which have either passed or failed initial designation procedures listed in subsection (1) of this section using the applicable biological testing of WAC 173-204-315, as required below. Sediment samples that pass all the required confirmatory biological tests are designated as passing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, notwithstanding the sediment's previous initial designation under subsection (1) of this section. Any sediment sample which fails any one of the required confirmatory biological tests shall be designated as failing the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, notwithstanding the sediment's previous initial designation under subsection (1) of this section. The confirmatory biological test standards are described below.

(a) To confirm the designation of a sediment which either passed or failed any applicable chemical concentration criterion established in WAC 173-204-320 through 173-204-340, the sediment shall be tested for:

(i) Two of the acute effects biological tests described in the applicable standards of WAC 173-204-315; and

(ii) One of the chronic effects biological tests described in the applicable standards of WAC 173-204-315.

(b) Sediments with chemical concentrations which either passed or failed any applicable human health criterion of WAC 173-204-320 through 173-204-340 shall be eligible for confirmatory designation as follows: Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(3) Initial and confirmatory designation of sediments which contain other toxic, radioactive, biological, or deleterious substances. Sediments which contain other toxic, radioactive, biological, or deleterious substances, as defined in WAC 173-204-200(~~((16))~~) (31), shall be designated by the department using the following procedures.

(a) The department shall:

(i) Identify individual contaminants of concern;

(ii) Identify appropriate and practicable sampling and analysis methodologies;

(iii) Identify test interpretation standards for initial and confirmatory designation; and

(iv) Identify acceptable levels of sediment contamination for sediments which contain other toxic, radioactive, biological, or deleterious substances.

(b) Where sediment containing other toxic, radioactive, biological or deleterious substances may also be contaminated by chemicals identified in WAC 173-204-320 through 173-204-340, the department shall require application of the appropriate tests and standards of WAC

550 173-204-320 through 173-204-340, as determined by the department, in addition to any
551 requirements developed pursuant to (a) of this subsection.

552 (c) The department may use all or some of the sediment biological tests of WAC 173-
553 204-320 through 173-204-340 to designate sediments with other toxic, radioactive, biological or
554 deleterious substances in cases where those tests are technically appropriate, as determined by
555 the department.

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557 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
558 019 (Order 90-41), § 173-204-310, filed 3/27/91, effective 4/27/91.]

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AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

WAC 173-204-320 Marine sediment quality standards. (1) Goal and applicability.

(a) The sediment quality standards of this section shall correspond to a sediment quality that will result in no adverse effects, including no acute or chronic adverse effects on biological resources and no significant health risk to humans.

(b) The marine sediment quality standards of this section shall apply to marine sediments located within Puget Sound as defined in WAC 173-204-200~~((+49))~~ (36).

(c) Non-Puget Sound marine sediment quality standards. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(2) Chemical concentration criteria. The chemical concentrations in Table I establish the marine sediment quality standards chemical criteria for designation of sediments.

(a) Where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit shall be reported and shall be at or below the Marine Sediment Quality Standards chemical criteria value set in this table.

(b) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

(c) The listed chemical parameter criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.

(d) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.

(e) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Total Benzo(a)fluoranthenes, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

(f) The TOTAL BENZOFLUORANTHENES criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.

Table I

Marine Sediment Quality Standards

Chemical Criteria

CHEMICAL PARAMETER	MG/KG DRY WEIGHT (PARTS PER MILLION (PPM) DRY)
ARSENIC	57
CADMIUM	5.1
CHROMIUM	260
COPPER	390
LEAD	450
MERCURY	0.41
SILVER	6.1
ZINC	410
CHEMICAL PARAMETER	MG/KG ORGANIC CARBON (PPM CARBON)
LPAH	370
NAPHTHALENE	99
ACENAPHTHYLENE	66
ACENAPHTHENE	16
FLUORENE	23
PHENANTHRENE	100
ANTHRACENE	220
2-METHYLNAPHTHALENE	38
HPAH	960
FLUORANTHENE	160
PYRENE	1000
BENZ(A)ANTHRACENE	110

CHRYSENE	110
TOTAL BENZOFLUORANTHENES	230
BENZO(A)PYRENE	99
INDENO (1,2,3,-C,D) PYRENE	34
DIBENZO (A,H) ANTHRACENE	12
BENZO(G,H,I)PERYLENE	31
1,2-DICHLOROBENZENE	2.3
1,4-DICHLOROBENZENE	3.1
1,2,4-TRICHLOROBENZENE	0.81
HEXACHLOROBENZENE	0.38
DIMETHYL PHTHALATE	53
DIETHYL PHTHALATE	61
DI-N-BUTYL PHTHALATE	220
BUTYL BENZYL PHTHALATE	4.9
BIS (2-ETHYLHEXYL) PHTHALATE	47
DI-N-OCTYL PHTHALATE	58
DIBENZOFURAN	15
HEXACHLOROBUTADIENE	3.9
N-NITROSODIPHENYLAMINE	11
TOTAL PCB'S	12
CHEMICAL	UG/KG DRY WEIGHT
PARAMETER	(PARTS PER BILLION (PPB) DRY)
PHENOL	420
2-METHYLPHENOL	63
4-METHYLPHENOL	670
2,4-DIMETHYL PHENOL	29

PENTACHLOROPHENOL	360
BENZYL ALCOHOL	57
BENZOIC ACID	650

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609 (3) Biological effects criteria. For designation of sediments pursuant to WAC 173-204-
610 310(2), sediments are determined to have adverse effects on biological resources when any one
611 of the confirmatory marine sediment biological tests of WAC 173-204-315(1) demonstrate the
612 following results:

613 (a) Amphipod: The test sediment has a higher (statistically significant, t test, p ≤ 0.05)
614 mean mortality than the reference sediment and the test sediment mean mortality exceeds
615 twenty-five percent, on an absolute basis.

616 (b) Larval: The test sediment has a mean survivorship of normal larvae that is less
617 (statistically significant, t test, p ≤ 0.05) than
618 sediment and the test sediment mean normal survivorship is less than eighty-five percent of the
619 mean normal survivorship in the reference sediment (i.e., the test sediment has a mean combined
620 abnormality and mortality that is greater than fifteen percent relative to time-final in the
621 reference sediment).

622 (c) Benthic abundance: The test sediment has less than fifty percent of the reference
623 sediment mean abundance of any one of the following major taxa: Class Crustacea, Phylum
624 Mollusca or Class Polychaeta, and the test sediment abundance is statistically different (t test,
625 p ≤ 0.05) from the reference sediment abundance.

626 (d) Juvenile polychaete: The test sediment has a mean individual growth rate of less than
627 seventy percent of the reference sediment mean individual growth rate and the test sediment

628 mean individual growth rate is statistically different (t test, p \leq 0.05) from t
629 mean individual growth rate.

630 (e) Microtox: The mean light output of the highest concentration of the test sediment is
631 less than eighty percent of the mean light output of the reference sediment, and the two means
632 are statistically different from each other (t test, p \leq 0.05).

633 (4) Marine sediment human health criteria. Reserved: The department may determine on
634 a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this
635 chapter.

636 (5) Marine sediment other toxic, radioactive, biological, or deleterious substances criteria.
637 Other toxic, radioactive, biological or deleterious substances in, or on, sediments shall be at or
638 below levels which cause no adverse effects in marine biological resources, and below levels
639 which correspond to a significant health risk to humans, as determined by the department. The
640 department shall determine on a case-by-case basis the criteria, methods, and procedures
641 necessary to meet the intent of this chapter pursuant to WAC 173-204-310(3).

642 (6) Nonanthropogenically affected sediment quality criteria. Whenever the
643 nonanthropogenically affected sediment quality is of a lower quality (i.e., higher chemical
644 concentrations, higher levels of adverse biological response, or posing a greater health threat to
645 humans) than the applicable sediment quality standards assigned for said sediments by this
646 chapter, the existing sediment chemical and biological quality shall be identified on an area-wide
647 basis as determined by the department, and used in place of the sediment quality standards of
648 WAC 173-204-320.

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650 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-320, filed 12/29/95, effective
651 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
652 91-08-019 (Order 90-41), § 173-204-320, filed 3/27/91, effective 4/27/91.]

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656 **WAC 173-204-340 Freshwater sediment quality standards.** Reserved: The
657 department shall determine on a case-by-case basis the criteria, methods, and procedures
658 necessary to meet the intent of this chapter.

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660 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
661 019 (Order 90-41), § 173-204-340, filed 3/27/91, effective 4/27/91.]

662

663 AMENDATORY SECTION_(Amending Order 90-41, filed 3/27/91, effective 4/27/91)

664

665 **WAC 173-204-350 Sediment quality standards inventory.** (1) The department shall
666 gather available data on sediments and produce an inventory of sediment sampling stations
667 which pass or fail the applicable sediment quality standards of WAC 173-204-320 through 173-
668 204-340. Sediment sampling stations which are evaluated for compliance with the sediment
669 quality standards of WAC 173-204-320 through 173-204-340 and placed on the inventory shall
670 be sampled and analyzed using the Puget Sound Protocols or other methods approved by the
671 department, and shall use an appropriate quality assurance/quality control program, as
672 determined by the department. The sediment quality standards inventory produced per this
673 section shall be used by the department, and made available upon request to the public and other
674 federal, state, and local agencies for the following uses:

675 (a) To identify and target necessary source control activities, such as discharger
676 monitoring, to eliminate adverse effects on biological resources and significant health threats to
677 humans from sediment contamination;

678 (b) To identify contaminated sediment cleanup sites per the procedures in WAC 173-204-
679 500 through 173-204-590;

680 (c) To establish sediment quality ambient monitoring program status and trends analyses
681 and reports;

682 (d) To identify the sediment quality of areas proposed for dredging, in-water
683 construction, and other actions requiring federal, state, and/or local permits; and

(e) To complete other uses consistent with the intent of this chapter, as determined by the department.

(2) Sources of data. Sediment biological and chemical data shall be gathered by the department for review to produce and update the sediment quality inventory on a biennial basis. Data sources include, but are not limited to:

(a) Sediment data collected by the department for the Puget Sound ambient monitoring program, compliance monitoring of permitted discharges, and special environmental investigations.

(b) Sediment data submitted to the U.S. Army Corps of Engineers in support of dredging permit applications.

(c) Sediment data collected to identify problem areas and needed source controls in Puget Sound as defined in WAC 173-204-200(~~((49))~~) (36), other marine waters, and all low salinity and freshwater areas in Washington state.

(d) Sediment data used or collected in compliance with chapter 70.105D RCW, and the Model Toxics Control Act cleanup regulation, chapter 173-340 WAC.

(e) Sediment data used or collected in compliance with the federal Comprehensive Environmental Response, Compensation and Liability Act.

(f) Sediment data collected as a requirement of a National Pollutant Discharge Elimination System or state discharge permit.

(g) Sediment data derived from other studies including:

(i) Federally sponsored monitoring studies.

705 (ii) Special monitoring studies conducted by local and municipal governments, or private
706 industry.

707 (iii) Data derived through Washington state department of natural resources
708 administration of use authorizations.

709 (3) The inventory shall be updated and made available to the public on a biennial basis.

710

711 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
712 019 (Order 90-41), § 173-204-350, filed 3/27/91, effective 4/27/91.]

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PART IV

SEDIMENT SOURCE CONTROL

WAC 173-204-400 General considerations. (1) The standards of WAC 173-204-400 through 173-204-420 specify a process for managing sources of sediment contamination. These procedures include:

- (a) Evaluating the potential for a waste discharge to create a sediment impact;
- (b) Requiring application for a sediment impact zone authorization;
- (c) Verifying whether a discharge has received all known, available and reasonable methods of prevention, control, and treatment prior to discharge, and/or application of best management practices;
- (d) Analysis and verification of the potential sediment impact;
- (e) Determining whether the sediment impact zone would meet maximum allowable contamination requirements;
- (f) Evaluating the proposed sediment impact zone in consideration of locational criteria;
- (g) Design and/or constrain the sediment impact zone to be as small, and with the least contamination, as practicable;

(h) Public review of the proposed sediment impact zone authorization;

(i) Issuance of the sediment impact zone authorization with provisions for maintenance and closure; and

(j) Reducing and eventually eliminating the sediment impact zone via renewals and modifications of a sediment impact zone authorization.

(2) Permits and other authorizations of wastewater, storm water, and nonpoint source discharges to surface waters of the state of Washington under authority of chapter 90.48 RCW shall be conditioned so that the discharge receives all known, available and reasonable methods of prevention, control, and treatment, and best management practices prior to discharge, as required by chapters 90.48, 90.52, and 90.54 RCW. The department shall provide consistent guidance on the collection, analysis and evaluation of wastewater, receiving-water, and sediment samples to meet the intent of this section using consideration of pertinent sections of the *Department of Ecology Permit Writers' Manual*, as amended, and other guidance approved by the department.

(3) As determined necessary, the department shall require any person who proposes a new discharge to evaluate the potential for the proposed discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(4) As determined necessary, the department shall require existing permitted discharges to evaluate the potential for the permitted discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(5) Within permits authorizing existing discharges to surface waters of the state of Washington, the department may specify appropriate locations and methodologies for the

collection and analysis of representative samples of wastewater, receiving-water, and sediments to evaluate the potential for the discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340.

(6) In establishing the need for, and the appropriate, individual permit monitoring conditions, the department shall consider multiple factors relating to the potential for a discharge to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340 including but not limited to:

- (a) Discharge particulate characteristics;
- (b) Discharge contaminant concentrations, flow, and loading rate;
- (c) Sediment chemical concentration and biological effects levels;
- (d) Receiving water characteristics;
- (e) The geomorphology of sediments;
- (f) Cost mitigating factors such as the available resources of the discharger; and
- (g) Other factors determined necessary by the department.

(7) As determined necessary to ensure the wastewater discharge does not cause a violation of the applicable standards of WAC 173-204-320 through 173-204-340, except as authorized by the department under WAC 173-204-415, Sediment impact zones, the department shall stipulate permit terms and conditions which include wastewater discharge average and maximum mass loading per unit time, and wastewater discharge average and maximum chemical concentrations within new and existing facility permits authorizing wastewater discharges to surface waters of the state of Washington.

(8) As determined necessary, the department shall modify wastewater discharge permits whenever it appears the discharge causes a violation, or creates a substantial potential to cause a violation of the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, as authorized by RCW 90.48.520.

(9) To meet the intent of this section, the sediment quality standards of WAC 173-204-320 through 173-204-340 and the sediment impact zone standards of WAC 173-204-415 through 173-204-420 are not considered to be federal discharge permit effluent limits subject to antibacksliding requirements of the federal Clean Water Act. Discharge permit sediment monitoring and sediment impact zone compliance requirements may be used to establish effluent limits sufficient to meet the standards of this chapter.

(10) As determined necessary, the department shall use issuance of administrative actions under authority of chapters 90.48 or 70.105D RCW to implement this chapter.

(11) Wastewater dilution zones. Water quality mixing zones authorized by the department pursuant to chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington, do not satisfy the standards of WAC 173-204-415, Sediment impact zones.

(12) For the sediment source control standards of WAC 173-204-400 through 173-204-420, any and all references to violation of, potential to violate, exceedance of, or potential to exceed the applicable standards of WAC 173-204-320 through 173-204-340 shall also apply to the antidegradation and designated use policies of WAC 173-204-120. Any exceedances or potential exceedances of the antidegradation or designated use policies of WAC 173-204-120 shall meet the applicable requirements of WAC 173-204-400 through 173-204-420.

804 (13) Under no circumstances shall the provisions of sediment source control standards
805 WAC 173-204-400 through 173-204-420 be construed as providing for the relaxation of
806 discharge permit requirements under other authorities including, but not limited to, chapter 90.48
807 RCW, the Water Pollution Control Act, chapter 90.54 RCW, the Water Resources Act of 1971,
808 and the Federal Water Pollution Control Act of 1972 and amendments.

809

810 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-400, filed 12/29/95, effective
811 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
812 91-08-019 (Order 90-41), § 173-204-400, filed 3/27/91, effective 4/27/91.]

813

814 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

815

816 **WAC 173-204-410 Sediment quality goal and sediment impact zone applicability.**

817 (1) Goal and policies.

818 (a) It is the established goal of the department to manage source control activities to
819 reduce and ultimately eliminate adverse effects on biological resources and significant health
820 threats to humans from sediment contamination.

821 (b) The stated policy of the department shall be to only authorize sediment impact zones
822 so as to minimize the number, size, and adverse effects of all zones, with the intent to eliminate
823 the existence of all such zones whenever practicable. The department shall consider the
824 relationship between environmental effects, technical feasibility and cost in determining whether
825 it is practicable to minimize and/or eliminate sediment impact zones.

826 (c) The department shall implement the standards of WAC 173-204-400 through 173-
827 204-420 so as to prevent the creation of new contaminated sediment cleanup sites identified
828 under WAC ((173-204-530(4))) 173-204-520.

829 (2) A sediment impact zone authorization issued by the department under the authority of
830 chapter 90.48 RCW does not constitute authorization to trespass on lands not owned by the
831 applicant. These standards do not address and in no way alter the legal rights, responsibilities, or
832 liabilities of the permittee or landowner of the sediment impact zone for any applicable
833 requirements of proprietary, real estate, tort, and/or other laws not directly expressed as a
834 requirement of this chapter.

(3) Except as identified in subsection (6)(d) of this section, any person may apply for a sediment impact zone under the following conditions:

(a) The person's discharge is provided with all known, available and reasonable methods of prevention, control, and treatment, and meets best management practices as stipulated by the department; and

(b) The person's discharge activity exposes or resuspends sediments which exceed, or otherwise cause or potentially cause sediments to exceed the applicable sediment quality standards of WAC 173-204-320 through 173-204-340, or the antidegradation policy standards of WAC 173-204-120 (1)(a) and (c) within a period of ten years from the later date of either the department's formal approval of the application for a sediment impact zone authorization or the starting date of the discharge.

(4) The department shall only authorize sediment impact zones for permitted wastewater and storm water discharges, and other discharges authorized by the department. The department shall authorize all sediment impact zones via discharge permits or other formal administrative actions.

(5) The department shall not limit the application, establishment, maintenance, or closure of an authorized sediment impact zone via consideration of sediment contamination determined by the department to be the result of unknown, unpermitted or historic discharge sources.

(6) As determined necessary by the department, any person with a permitted discharge shall be required to meet the standards of WAC 173-204-400 through 173-204-420, as follows:

(a) Any person with a new or existing permitted wastewater discharge shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(b) Any person with a new or existing permitted industrial storm water discharge, regulated as process wastewater in National Pollutant Discharge Elimination System or state discharge permits, shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(c) Any person with a new or existing permitted storm water or nonpoint source discharge, which fully uses all known, available and reasonable methods of prevention, control, and treatment, and best management practices as stipulated by the department at the time of the person's application for a sediment impact zone, shall be required to meet the standards of WAC 173-204-400 through 173-204-420;

(d) Any person with a storm water discharge, existing prior to the adoption of this chapter, and determined by the department to not be fully using best management practices stipulated by the department at the time of the person's application for a permit from the department, shall be eligible for a sediment impact zone as follows:

(i) The department shall issue sediment impact zone authorizations with requirements for application of best management practices stipulated by the department on an approved time schedule.

(ii) Sediment impact zones authorized by the department for permitted storm water discharges under the applicability provisions of subsection (6)(d) of this section shall be subject to cleanup action determinations made by the department pursuant to WAC 173-204-500 through 173-204-590 when the sediment impact zone maximum criteria of WAC 173-204-420 are exceeded within the authorized sediment impact zone.

(iii) The department shall identify and include best management practices required to meet the sediment impact zone design standards of WAC 173-204-415(4) as soon as practicable within sediment impact zone authorizations established for storm water discharges per WAC 173-204-410 (6)(d).

(7) Dredged material and fill discharge activities subject to authorization under Section 401 of the federal Clean Water Act via chapter 90.48 RCW and chapter 173-225 WAC, establishment of implementation procedures of application for certification, are not subject to the standards of WAC 173-204-415 but are subject to the standards of WAC 173-204-400 through 173-204-410 and 173-204-420 as follows:

(a) Requirements for dredging activities and disposal sites shall be established by the department using best available dredged material management guidelines and applicable federal and state rules. These guidelines shall include the Puget Sound dredged disposal analysis (PSDDA) dredged material testing and disposal requirements cited in:

(i) *Management Plan Report - Unconfined Open-Water Disposal Of Dredged Material, Phase I, (Central Puget Sound), June 1988, or as amended;*

(ii) *Management Plan Report - Unconfined Open-Water Disposal Of Dredged Material, Phase II, (North And South Puget Sound), September 1989, or as amended;* and

(iii) *Users Manual For Dredged Material Management In Puget Sound, November 1990, or as amended.*

(b) In coordination with other applicable federal and state and local dredged material management programs, the department may issue administrative orders to establish approved

899 disposal sites, to specify disposal site use conditions, and to specify disposal site monitoring
900 requirements.

901 (c) The department may authorize sediment impact zones for dredged material disposal
902 via federal Clean Water Act Section 401 certification actions.

903 (d) As determined necessary by the department, the department may authorize sediment
904 impact zones for dredged material disposal via administrative orders issued under authority of
905 chapter 90.48 RCW. The department shall authorize sediment impact zones for all Puget Sound
906 dredged disposal analysis disposal sites via administrative orders issued under authority of
907 chapter 90.48 RCW.

908 (e) Administrative orders and certifications establishing sediment impact zones for
909 dredged material disposal sites shall describe establishment, maintenance, and closure
910 requirements for the authorized site, consistent with the requirements described in (a) of this
911 subsection.

912 (8) The source control standards of WAC 173-204-400 through 173-204-420 are
913 applicable in cases where the sediment quality standards of WAC 173-204-320 through 173-204-
914 340 are reserved.

915

916 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-410, filed 12/29/95, effective
917 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
918 91-08-019 (Order 90-41), § 173-204-410, filed 3/27/91, effective 4/27/91.]

919

920 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

921

922 **WAC 173-204-412 Marine finfish rearing facilities.** (1) Purpose. This section sets
923 forth the applicability of this chapter to marine finfish rearing facilities only. This section also
924 identifies marine finfish rearing facility siting, operation, closure and monitoring requirements to
925 meet the intent of this chapter, as applicable.

926 (2) Applicability. Marine finfish rearing facilities and their associated discharges are not
927 subject to the authority and purpose standards of WAC 173-204-100 (3) and (7), and the marine
928 sediment quality standards of WAC 173-204-320 and the sediment impact zone maximum
929 criteria of WAC 173-204-420, within and including the distance of one hundred feet from the
930 outer edge of the marine finfish rearing facility structure. Marine finfish rearing facilities are not
931 subject to the sediment impact zone standards of WAC 173-204-415.

932 (3) Sediment monitoring. Sediment quality compliance and monitoring requirements for
933 marine finfish rearing facilities shall be addressed through National Pollutant Discharge
934 Elimination System or other permits issued by the department for facility operation. Marine
935 finfish rearing facilities shall meet the following sediment quality monitoring requirements:

936 (a) Any person with a new facility shall identify a baseline sediment quality prior to
937 facility operation for benthic infaunal abundance, total organic carbon and grain size in the
938 location of the proposed operation and downcurrent areas that may be potentially impacted by
939 the facility discharge;

(b) Any person with an existing operating facility shall monitor sediment quality for total organic carbon levels and identify the location of any sediments in the area of the facility statistically different (t test, p ≤ 0.05) from the levels identified as facility baseline levels or statistically different from the applicable total organic carbon levels as identified in Table 1:

TABLE 1 - Puget Sound Reference Total Organic Carbon Values

Silt-Clay Particles (percent Dry Weight)	Total Organic Carbon (percent Dry Weight)
0-20	0.5
20-50	1.7
50-80	3.2
80-100	2.6

(c) The locations and frequency of monitoring for total organic carbon, benthic infaunal abundance and other parameters shall be determined by the department and identified in the applicable National Pollutant Discharge Elimination System permit;

(d) Antibacterials. Reserved: The department shall determine on a case-by-case basis the methods, procedure, locations, and frequency for monitoring antibacterials associated with the discharge from a marine finfish rearing facility;

(e) Closure. All permitted marine finfish rearing facilities shall monitor sediments impacted during facility operation to document recovery of sediment quality to background levels. The department shall determine on a case-by-case basis the methods, procedure, locations, and frequency for monitoring sediments after facility closure.

(4) Sediment impact zones. Marine finfish rearing facilities and their associated discharges that are permitted under a National Pollutant Discharge Elimination System permit are hereby provided a sediment impact zone by rule for any sediment quality impacts and biological effects within and including the distance of one hundred feet from the outer edge of the marine finfish rearing facility structure.

(a) The department may authorize an individual marine finfish rearing facility sediment impact zone for any sediments beyond a distance of one hundred feet from the facility perimeter via National Pollutant Discharge Elimination System permits or administrative actions. The authorized sediment impact zone shall meet the benthic infaunal abundance requirements of the sediment impact zone maximum criteria, WAC 173-204-420 (3)(c)(iii). Marine finfish rearing facilities that exceed the sediment quality conditions of subsection (3)(b) of this section beyond a distance of one hundred feet from the facility perimeter shall:

(i) Begin an enhanced sediment quality monitoring program to include benthic infaunal abundance consistent with the requirements of the National Pollutant Discharge Elimination System permit. The sediment quality monitoring program shall include a benthic infaunal abundance reference sediment sample as required in subsection (3)(a) of this section or a benthic infaunal abundance reference sediment sample in compliance with WAC 173-204-200(~~((21))~~) (39); and

(ii) Be consistent with the sediment source control general considerations of WAC 173-204-400 and the sediment quality goal and sediment impact zone applicability requirements of WAC 173-204-410, apply for a sediment impact zone as determined necessary by the department.

978 (b) Administrative orders or permits establishing sediment impact zones for marine
979 finfish rearing facilities shall describe establishment, maintenance, and closure requirements as
980 determined necessary by the department.

981

982 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-412, filed 12/29/95, effective
983 1/29/96.

984

985 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

986

987 **WAC 173-204-415 Sediment impact zones.** The purpose of this section is to set forth
988 the standards for establishment, maintenance, and closure of sediment impact zones to meet the
989 intent of sediment quality dilution zones authorized pursuant to RCW 90.48.520, except for
990 sediment impact zones authorized under WAC 173-204-410(7). The department shall authorize
991 all sediment impact zones via discharge permits or other formal administrative actions.

992 (1) General requirements. Authorization, modification and renewal of a sediment impact
993 zone by the department shall require compliance with the following general requirements:

994 (a) Permits authorizing wastewater discharges to surface waters of the state of
995 Washington under authority of chapter 90.48 RCW shall be conditioned so that the discharge
996 receives:

997 (i) All known, available and reasonable methods of prevention, control, and treatment
998 prior to discharge, as required by chapters 90.48, 90.52, and 90.54 RCW; and

999 (ii) Best management practices as stipulated by the department.

1000 (b) The maximum area, and maximum chemical contaminant concentration and/or
1001 allowable maximum biological effect level within sediments assigned to a sediment impact zone
1002 shall be as authorized by the department, in accordance with the standards of this section.

1003 (c) The department shall determine that the person's activity generating effluent
1004 discharges which require authorization of a sediment impact zone is in the public interest.

1005 (d) The department shall determine that any person's activity generating effluent
1006 discharges which require authorization of a sediment impact zone has adequately addressed
1007 alternative waste reduction, recycling, and disposal options through application of all known,
1008 available and reasonable methods of prevention, control, and treatment to minimize as best
1009 practicable the volume and concentration of waste contaminants in the discharge.

1010 (e) The area boundaries of the sediment impact zone established by the department shall
1011 include the minimum practicable surface area, not to exceed the surface area allowed under
1012 subsection (4) of this section.

1013 (f) Adverse effects to biological resources within an authorized sediment impact zone
1014 shall be maintained at the minimum chemical contamination and biological effects levels
1015 practicable at all times. The department shall consider the relationship between environmental
1016 effects, technical feasibility and cost in determining the minimum practicable chemical
1017 contamination and biological effects levels. Adverse effects to biological resources within an
1018 authorized sediment impact zone shall not exceed a minor adverse effects level as a result of the
1019 discharge, as determined by the procedures of subsection (4) of this section.

1020 (g) The operational terms and conditions for the sediment impact zone shall be
1021 maintained at all times.

1022 (h) Final closure of the sediment impact zone shall be conducted in strict accordance with
1023 the department's sediment impact zone authorization.

1024 (i) Documents authorizing a sediment impact zone shall require that the permitted
1025 discharge not result in a violation of the applicable sediment quality standards of WAC 173-204-
1026 320 through 173-204-340, outside the area limits of the established zone.

1027 (j) All applications to the department for sediment impact zone authorizations shall be
1028 subject to public notice, comment and hearing procedures defined but not limited to the
1029 applicable discharge permit or other formal administrative action requirements of chapter 43.21C
1030 RCW, the State Environmental Policy Act, chapter 197-11 WAC, SEPA rules, chapter 90.48
1031 RCW, chapter 163-216 WAC, the State waste discharge permit program, and chapter 173-220
1032 WAC, National Pollutant Discharge Elimination System Permit Program prior to issuance of the
1033 authorization. In determining the need for, location, and/or design of any sediment impact zone
1034 authorization, the department shall give consideration to all comments received during public
1035 review of the proposed sediment impact zone application.

1036 (2) Application requirements.

1037 (a) Whenever, in the opinion of the department, as a result of an ongoing or proposed
1038 effluent discharge, a person violates, shall violate, or creates a substantial potential to violate the
1039 sediment quality standards of WAC 173-204-320 through 173-204-340 as applicable within a
1040 period of ten years from the later date of either the department's evaluation of the ongoing
1041 discharge or the starting date of the proposed discharge, the department may require application
1042 for a sediment impact zone authorization under authority of chapter 90.48 RCW.

1043 (b) Any person with a proposed or permitted effluent discharge shall apply to the
1044 department for authorization of a sediment impact zone when:

1045 (i) The department requires the sediment impact zone application by written notification;
1046 or

1047 (ii) The person independently identifies that the ongoing or proposed effluent discharge
1048 violates, shall violate, or creates a substantial potential to violate the applicable sediment quality

standards of WAC 173-204-320 through 173-204-340 within a period of ten years from the later date of the person's evaluation of the ongoing discharge or the starting date of the proposed discharge, using the procedures of this section.

(c) As necessary, the department may require any person to submit a sediment impact zone application in multiple steps concurrent with its ongoing review and determination concerning the adequacy of the application. The application shall provide the sediment impact zone design information required in subsection (4) of this section and other such information the department determines necessary. The application shall also provide the legal location and landowner(s) of property proposed for use as, or potentially affected by, a sediment impact zone, and shall be accompanied by such other relevant information as the department may require. The department shall issue a written approval of the complete sediment impact zone application prior to or concurrent with authorizing a sediment impact zone.

(d) Submittal of an application to the department for authorization of a sediment impact zone under the terms and conditions of this section shall establish the applicant's interim compliance with requirements of chapter 90.48 RCW and this chapter, as determined by the department. The department may authorize an interim compliance period within a valid discharge permit or administrative order to ensure ultimate compliance with chapter 90.48 RCW and this chapter. The interim compliance period shall not continue beyond the date of issuance of a sediment impact zone authorization within a valid discharge permit issued by the department.

(e) Prior to authorization, the department shall make a reasonable effort to identify and notify all landowners, adjacent landowners, and lessees affected by the proposed sediment

1071 impact zone. The department shall issue a sediment impact zone notification letter to any person
1072 it believes to be a potentially affected landowner and other parties determined appropriate by the
1073 department. The notification letter shall be sent by certified mail, return receipt requested, or by
1074 personal service. The notification letter shall provide:

1075 (i) The name of the person the department believes to be the affected landowner;

1076 (ii) The names and addresses of other affected landowners to whom the department has
1077 sent a proposed sediment impact zone notification letter;

1078 (iii) The name and address of the sediment impact zone applicant;

1079 (iv) A general description of the location, size, and contamination level proposed for the
1080 sediment impact zone;

1081 (v) The intention of the department to release all specific sediment impact zone
1082 application information to the public upon written request to the department;

1083 (vi) The determination of the department concerning whether the proposed sediment
1084 impact zone application meets the standards of this section;

1085 (vii) The intention of the department whether to authorize the proposed sediment impact
1086 zone; and

1087 (viii) Notification that the affected landowners, adjacent landowners, and lessees may
1088 comment on the proposed sediment impact zone. Any comments on the proposed sediment
1089 impact zone authorization shall be submitted in writing to the department within thirty days from
1090 the date of receipt of the notification letter, unless the department provides an extension.

1091 (f) Prior to authorization, the department shall issue a sediment impact zone notification
1092 letter to affected port districts, the Washington state department of natural resources marine lands
1093 division, the U.S. Army Corps of Engineers, and other parties determined appropriate by the
1094 department. The notification letter shall be sent by certified mail, return receipt requested, or by
1095 personal service. The notification letter shall provide the information required under (e) of this
1096 subsection.

1097 (3) Locational considerations. The department shall require any person applying for a
1098 sediment impact zone to submit information concerning potential location considerations of the
1099 zone. The location of an authorized sediment impact zone shall avoid whenever possible and
1100 minimize adverse impacts to areas of special importance. Prior to authorization of a sediment
1101 impact zone, the department shall consider all pertinent information from the applicant, all
1102 affected parties, local, state and federal agencies, federally recognized Indian tribes, and the
1103 public concerning locational considerations, including but not limited to:

1104 (a) Spawning areas;

1105 (b) Nursery areas;

1106 (c) Waterfowl feeding areas;

1107 (d) Shellfish harvest areas;

1108 (e) Areas used by species of economic importance;

1109 (f) Tribal areas of significance;

1110 (g) Areas determined to be ecologically unique;

1111 (h) Water supply intake areas;

1112 (i) Areas used for primary contact public recreation;

1113 (j) High quality waters that constitute an outstanding national resource; and

1114 (k) Areas where sediment quality is substantially better than levels necessary for
1115 protection of biological resources and human health.

1116 (4) Design requirements. The location, areal limitations, and degree of effects allowed
1117 within an authorized sediment impact zone shall be determined by application of the
1118 department's sediment impact zone computer models "CORMIX," "PLUMES," and/or "WASP," or an
1119 alternate sediment impact zone model(s) approved by the department under WAC 173-204-
1120 130(4), as limited by the standards of this section and the department's best professional
1121 judgment. The models shall be used by the department or by the discharger as required by the
1122 department, to estimate the impact of any person's wastewater or storm water discharge on the
1123 receiving water and sediment quality for a period of ten years from the later date of either the
1124 department's formal approval of the application for a sediment impact zone authorization or the
1125 starting date of the discharge.

1126 (a) Data requirements. The discharger shall submit the following information to
1127 determine requirements for establishment and authorization of a sediment impact zone, as
1128 required by the department:

1129 (i) Data reports and analyses results for all samples of wastewater or storm water,
1130 receiving water, and sediments collected by the discharger or other parties relating to evaluation
1131 of the potential effects of the permitted discharge, as required by WAC 173-204-400.

1132 (ii) Data reports and analyses results determined necessary to:

1133 (A) Apply discharge modeling to the permitted discharge; and

1134 (B) To identify and evaluate potential alternative chemical and biological effects of the
1135 discharge on the receiving water and sediments; and

1136 (C) To identify and evaluate potential alternatives to define the areal size and location of
1137 a sediment impact zone needed by the discharge.

1138 (iii) Data reports and analyses results from the discharger's application of the "CORMIX,"
1139 "PLUMES," and/or "WASP" or an alternate sediment impact zone model(s) approved by the
1140 department under WAC 173-204-130(4), to the permitted discharge to identify and evaluate:

1141 (A) Potential alternative chemical and biological effects of the discharge on the receiving
1142 water and sediments; and

1143 (B) Potential alternatives for the areal distribution and location of a potential sediment
1144 impact zone required by the discharge.

1145 (iv) Preferred alternative for closure of the potential sediment impact zone by active
1146 removal and/or natural recovery, and identified costs of the preferred closure method.

1147 (b) Overlapping sediment impact zones. Overlapping sediment impact zones, as
1148 predicted by the "CORMIX," "PLUMES," and/or "WASP" models or an alternate sediment impact
1149 zone model(s) approved by the department under WAC 173-204-130(4), and the department's
1150 best professional judgment, shall be authorized only as follows:

1151 (i) The applicable sediment impact zone maximum criteria of WAC 173-204-420 shall
1152 not be exceeded as a result of the multiple discharge sediment impact zones overlap; and

1153 (ii) If the department determines that the applicable chemical contaminant concentration
1154 and biological effects restrictions of WAC 173-204-420 would be exceeded as a result of the
1155 overlap of multiple discharge sediment impact zones, the department may authorize the sediment
1156 impact zones after:

1157 (A) Application of a waste load allocation process to the individual permitted discharges
1158 to identify individual permit effluent limitations necessary to meet:

1159 (I) The applicable chemical contaminant concentration and biological effects restrictions
1160 for sediment impact zones required by this section; and/or

1161 (II) Storm water best management practices required by the department; and

1162 (B) Establishment of individual permit compliance schedules for the multiple permitted
1163 discharges to ensure compliance with:

1164 (I) The permit effluent limitations established by the department using the waste load
1165 allocation process and best professional judgment; and

1166 (II) The standards of WAC 173-204-400 through 173-204-420.

1167 (5) Maintenance requirements.

1168 (a) The department shall review sediment impact zone monitoring conducted by the
1169 discharger to evaluate compliance with the department's sediment impact zone authorization and
1170 the standards of WAC 173-204-400 through 173-204-420. The department may require

1171 additional sediment impact zone monitoring when the department determines that any sediment
1172 sampling station within an authorized sediment impact zone exceeds the sediment impact zone
1173 maximum criteria of WAC 173-204-420 or violates the sediment impact zone authorization as a
1174 result of the discharge.

1175 (b) Whenever the department can clearly demonstrate that, as a result of an effluent
1176 discharge, a discharger violates, shall violate, or creates a substantial potential to violate the
1177 department's sediment impact zone authorization, or the sediment impact zone maximum criteria
1178 of WAC 173-204-420, the department shall:

1179 (i) Provide written notification and supporting documentation of the department's clear
1180 demonstration determination to the affected discharger;

1181 (ii) Establish a reasonable time frame for the affected discharger to either submit a
1182 written statement and supporting documentation rebutting the department's clear demonstration
1183 determination, or accept the department's determination. The discharger may use the clear
1184 demonstration methods identified in (c) of this subsection for rebuttal of the department's clear
1185 demonstration; and

1186 (iii) Provide written notification of the department's determination concerning approval
1187 or denial of the submitted clear demonstration rebuttal to the discharger.

1188 (c) For the purpose of this section, a clear demonstration shall consist of:

1189 (i) Use of the sediment impact zone model(s) "CORMIX," "PLUMES," and/or "WASP" or
1190 other model(s) to demonstrate a discharge(s) is the source of the violation or potential violation;
1191 and

1192 (ii) Use of one or more of the following methods to demonstrate a violation of the
1193 sediment impact zone authorization or the sediment impact zone maximum criteria of WAC 173-
1194 204-420:

1195 (A) Direct sediment sampling. A violation of the sediment impact zone authorization
1196 and/or the sediment impact zone maximum criteria of WAC 173-204-420 is demonstrated when:

1197 (I) The average chemical concentration for three stations within the sediment impact zone
1198 exceeds the sediment impact zone maximum criteria of WAC 173-204-420 due to the discharge
1199 source. This concentration average shall not include stations for which complete biological
1200 testing information shows that the biological effects requirements of WAC 173-204-420, or the
1201 authorized sediment impact zone if applicable, are met; or

1202 (II) The biological effects at each of any three stations within the sediment impact zone
1203 exceed the sediment impact zone maximum biological effects criteria of WAC 173-204-420 or
1204 the authorized sediment impact zone as applicable, due to the discharge source; or

1205 (B) Monitoring data which demonstrates a chemical contaminant concentration gradient
1206 toward the discharge source exists in sediments which violates the sediment impact zone
1207 authorization or the standards of WAC 173-204-420; or

1208 (C) A trend analysis of the effluent chemical discharge quality and ~~((in place))~~ in place
1209 sediment monitoring data which statistically demonstrates an ongoing violation or substantial
1210 potential to violate the sediment impact zone authorization or the standards of WAC 173-204-
1211 420; or

1212 (D) Field depositional (e.g., sediment traps) and/or effluent particulate (e.g., centrifuge
1213 analysis) data which demonstrate an ongoing violation or substantial potential to violate the
1214 sediment impact zone authorization or the standards of WAC 173-204-420; or

1215 (E) Mathematical or computer modeling which demonstrates an ongoing violation or
1216 substantial potential to violate the sediment impact zone authorization or the standards of WAC
1217 173-204-420.

1218 (d) The department's response to a clear demonstration of a violation or potential
1219 violation shall be to require maintenance activities in the following order:

1220 (i) Require reanalysis of whether the discharger's effluent treatment complies with all
1221 known, available and reasonable methods of prevention, control, and treatment and best
1222 management practices based on the data used to establish the clear demonstration;

1223 (ii) Alter the authorized sediment impact zone size and/or degree of effects consistent
1224 with the standards of this section and the results of direct sediment sampling;

1225 (iii) Reduce impacts of the existing or potential violation by requiring additional
1226 discharge controls or additional sediment impact zone maintenance activities which can include,
1227 but are not limited to:

1228 (A) Dredging and removal of sediments, solely for sediment impact zone maintenance
1229 needs or coordinated with maintenance dredging of commercially important areas, e.g.,
1230 navigational lanes or ship berthing areas;

1231 (B) Dredging, treatment, and replacement of sediments within the sediment impact zone;
1232 and/or

1233 (C) Capping of sediments within the sediment impact zone;

1234 (iv) Limit the quantity and/or quality of the existing permitted discharge; and/or

1235 (v) Withdraw the department's sediment impact zone authorization and require final
1236 closure of the zone.

1237 (e) All sediment impact zone maintenance actions conducted under this chapter shall
1238 provide for landowner review of the maintenance action plans prior to implementation of the
1239 action. In cases where the discharger is not able to secure access to lands subject to the sediment
1240 impact zone maintenance actions of this subsection, the department may facilitate negotiations or
1241 other proceedings to secure access to the lands. Requests for department facilitation of land
1242 access shall be submitted to the department in writing by the responsible discharger.

1243 (6) Closure planning and requirements.

1244 (a) The discharger shall select and identify a preferred method for closure of a sediment
1245 impact zone in the application required by WAC 173-204-415(2). Closure methods can include
1246 either active cleanup and/or natural recovery and monitoring. The department shall incorporate
1247 the discharger's identified closure method in the sediment impact zone authorization.

1248 (b) The department may require closure of authorized sediment impact zones when the
1249 department determines that:

1250 (i) The discharger has violated the sediment impact zone maintenance standards of
1251 subsection (5) of this section; or

1252 (ii) The department determines that:

1253 (A) The wastewater or storm water discharge quality will not violate the applicable
1254 sediment quality standards of WAC 173-204-320 through 173-204-340; or

1255 (B) A sediment impact zone is no longer needed or eligible under the standards of WAC
1256 173-204-410 through 173-204-415.

1257 (7) Modification of sediment impact zones. The department may modify sediment
1258 impact zone authorization requirements where the nature of a person's activity which generates,
1259 transports, disposes, prevents, controls, or treats effluent discharges has substantially changed
1260 and been demonstrated to the department's satisfaction. The modification may occur after
1261 consideration of the following:

1262 (a) Reduction of effects. Assessment of the discharge activities and treatment methods
1263 shall be conducted by the discharger to demonstrate to the satisfaction of the department that:

1264 (i) Elimination of the sediment impact zone is not practicable; and

1265 (ii) Further reduction in any existing or proposed sediment impact zone area size and/or
1266 level of contamination or effects is not practicable in consideration of discharge requirements for
1267 all known, available and reasonable methods of prevention, control, and treatment, best
1268 management practices, and applicable waste reduction and recycling provisions.

1269 (b) Alterations. There are substantial alterations or additions to the person's activity
1270 generating effluent discharges which require authorization of a sediment impact zone which
1271 occur after permit issuance and justify application of permit conditions different from, or absent
1272 in, the existing permit.

1273 (c) New information. Sediment impact zones may be modified when new information is
1274 received by the department that was not available at the time of permit issuance that would have
1275 justified the application of different sediment impact zone authorization conditions.

1276 (d) New regulations. The standards or regulations on which the permit was based have
1277 changed by amended standards, criteria, or by judicial decision after the permit was issued.

1278 (e) Changes in technology. Advances in waste control technology that qualify as "all
1279 known, available and reasonable methods of prevention, control, and treatment" and "best
1280 management practices" shall be adopted as permit requirements, as appropriate, in all permits
1281 reissued by the department.

1282 (8) Renewal of previously authorized sediment impact zones. Renewal of sediment
1283 impact zones previously authorized under the standards of WAC 173-204-410 and this section
1284 shall be allowed under the following conditions:

1285 (a) The department determines the discharge activities and treatment methods meet all
1286 known, available and reasonable methods of prevention, control, and treatment and best
1287 management practices as stipulated by the department; and

1288 (b) The discharger demonstrates to the department's satisfaction that the discharge
1289 activities comply with the standards of WAC 173-204-400 through 173-204-420 and with the
1290 existing sediment impact zone authorization; and

1291 (c) Reduction of effects. The discharger conducts an assessment of the permitted
1292 discharge activities and treatment methods and demonstrates to the department's satisfaction that:

1293 (i) Elimination of the sediment impact zone is not practicable; and

1294 (ii) A further reduction in any existing or proposed sediment impact zone area size and/or
1295 level of contamination is not practicable in consideration of discharge requirements for all
1296 known, available and reasonable methods of prevention, control, and treatment, best
1297 management practices, and applicable waste reduction and recycling provisions.

1298

1299 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-415, filed 12/29/95, effective
1300 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
1301 91-08-019 (Order 90-41), § 173-204-415, filed 3/27/91, effective 4/27/91.]

1302

1303

WAC 173-204-420 Sediment impact zone maximum criteria. This section establishes minor adverse effects as the maximum chemical contaminant concentration, maximum health risk to humans, maximum biological effects level, maximum other toxic, radioactive, biological, or deleterious substance level, and maximum nonanthropogenically affected sediment quality level allowed within authorized sediment impact zones due to an existing or proposed discharge. If the department determines that the standards of this section are or will be exceeded as a result of an existing or proposed discharge(s), the department shall authorize a sediment impact zone or modify a sediment impact zone authorization consistent with the standards of WAC 173-204-400 through 173-204-420 such that individual permit effluent limitations, requirements, and compliance time periods are sufficient to meet the standards of this section as applicable.

(1) Applicability.

(a) The marine sediment impact zone maximum chemical criteria, and the marine sediment biological effects criteria, and the marine sediment human health criteria, and the marine sediment other toxic, radioactive, biological or deleterious substance criteria and the marine sediment nonanthropogenically affected sediment criteria of this section shall apply to marine sediments within Puget Sound.

(b) Non-Puget Sound marine sediment impact zone maximum criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(c) Low salinity sediment impact zone maximum criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(d) Freshwater sediment impact zone maximum criteria. Reserved: The department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

(2) Puget Sound marine sediment impact zone maximum chemical criteria. The maximum chemical concentration levels that may be allowed within an authorized sediment impact zone due to a permitted or otherwise authorized discharge shall be at or below the chemical levels stipulated in Table II, Sediment Impact Zone Maximum Chemical Criteria, except as provided for by the marine sediment biological effects restrictions of subsection (3) of this section, and any compliance time periods established under WAC 173-204-410 (6)(d) and 173-204-415.

(a) Where laboratory analysis indicates a chemical is not detected in a sediment sample, the detection limit shall be reported and shall be at or below the Marine Sediment Quality Standards chemical criteria value set in WAC 173-204-320(2).

(b) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods shall be applied:

(i) Where chemical analyses identify an undetected value for every individual compound/isomer then the single highest detection limit shall represent the sum of the respective compounds/isomers; and

(ii) Where chemical analyses detect one or more individual compound/isomers, only the detected concentrations will be added to represent the group sum.

(c) The listed chemical parameter criteria represent concentrations in parts per million, "normalized," or expressed, on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.

(d) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds as listed.

(e) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Total Benzo(a)fluoranthenes, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

(f) The TOTAL BENZOFLUORANTHENES criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.

Table II

Puget Sound Marine Sediment Impact Zones

Maximum Chemical Criteria

CHEMICAL PARAMETER	MG/KG DRY WEIGHT (PARTS PER MILLION (PPM) DRY)
ARSENIC	93
CADMIUM	6.7
CHROMIUM	270
COPPER	390
LEAD	530
MERCURY	0.59
SILVER	6.1
ZINC	960
CHEMICAL PARAMETER	MG/KG ORGANIC CARBON (PPM CARBON)
LPAH	780
NAPHTHALENE	170
ACENAPHTHYLENE	66
ACENAPHTHENE	57
FLUORENE	79
PHENANTHRENE	480
ANTHRACENE	1200
2-METHYLNAPHTHALENE	64
HPAH	5300
FLUORANTHENE	1200
PYRENE	1400
BENZ(A)ANTHRACENE	270

CHRYSENE	460
TOTAL BENZOFLUORANTHENES	450
BENZO(A)PYRENE	210
INDENO (1,2,3,-C,D) PYRENE	88
DIBENZO (A,H) ANTHRACENE	33
BENZO(G,H,I)PERYLENE	78
1,2-DICHLOROBENZENE	2.3
1,4-DICHLOROBENZENE	9
1,2,4-TRICHLOROBENZENE	1.8
HEXACHLOROBENZENE	2.3
DIMETHYL PHTHALATE	53
DIETHYL PHTHALATE	110
DI-N-BUTYL PHTHALATE	1700
BUTYL BENZYL PHTHALATE	64
BIS (2-ETHYLHEXYL) PHTHALATE	78
DI-N-OCTYL PHTHALATE	4500
DIBENZOFURAN	58
HEXACHLOROBUTADIENE	6.2
N-NITROSODIPHENYLAMINE	11
TOTAL PCB'S	65
CHEMICAL	UG/KG DRY WEIGHT
PARAMETER	(PARTS PER BILLION (PPB) DRY)
PHENOL	1200
2-METHYLPHENOL	63
4-METHYLPHENOL	670
2,4-DIMETHYL PHENOL	29
PENTACHLOROPHENOL	690

BENZYL ALCOHOL

73

BENZOIC ACID

650

1370

1371 (3) Puget Sound marine sediment impact zone maximum biological effects criteria. The
1372 maximum biological effects level that may be allowed within an authorized sediment impact
1373 zone shall be at or below a minor adverse biological effects level. The acute and chronic effects
1374 biological tests of WAC 173-204-315(1) may be used to determine compliance with the minor
1375 adverse biological effects restriction within an authorized sediment impact zone as follows:

1376 (a) When using biological testing to determine compliance with the maximum biological
1377 effects criteria within a sediment impact zone, a person shall select and conduct any two acute
1378 effects tests and any one chronic effects test.

1379 (b) The biological tests shall not be considered valid unless test results for the appropriate
1380 control and reference sediment samples meet the performance standards described in WAC 173-
1381 204-315(2).

1382 (c) The sediment impact zone maximum biological effects level is established as that
1383 level below which any two of the biological tests in any combination exceed the criteria of WAC
1384 173-204-320(3), or one of the following biological test determinations is made:

1385 (i) Amphipod: The test sediment has a higher (statistically significant, t test, $p \leq 0.05$)
1386 mean mortality than the reference sediment and the test sediment mean mortality is greater than a
1387 value represented by the reference sediment mean mortality plus thirty percent; or

1388 (ii) Larval: The test sediment has a mean survivorship of normal larvae that is less

1389 (statistically significant, t test, $p \leq 0.05$) than the mean nor

1390 sediment sample and the test sediment mean normal survivorship is less than seventy percent of
1391 the mean normal survivorship in the reference sediment (i.e., the test sediment has a mean
1392 combined abnormality and mortality that is greater than thirty percent relative to time-final in the
1393 reference sediment); or

1394 (iii) Benthic abundance: The test sediment has less than fifty percent of the reference
1395 sediment mean abundance of any two of the following major taxa: Class Crustacea, Phylum
1396 Mollusca or Class Polychaeta and the test sediment abundances are statistically different (t test,
1397 $p \leq 0.05$) from the reference sediment abundances; or

1398 (iv) Juvenile polychaete: The test sediment has a mean individual growth rate of less
1399 than fifty percent of the reference sediment mean individual growth rate and the test sediment
1400 mean individual growth rate is statistically different (t test, $p \leq 0.05$) from the
1401 mean individual growth rate.

1402 (4) Puget Sound marine sediment impact zone maximum human health criteria.
1403 Reserved: The department may determine on a case-by-case basis the criteria, methods, and
1404 procedures necessary to meet the intent of this chapter.

1405 (5) Puget Sound marine sediment impact zone maximum other toxic, radioactive,
1406 biological, or deleterious substances criteria. Other toxic, radioactive, biological or deleterious
1407 substances in, or on, sediments shall be below levels which cause minor adverse effects in
1408 marine biological resources, or which correspond to a significant health risk to humans, as
1409 determined by the department. The department shall determine on a case-by-case basis the
1410 criteria, methods, and procedures necessary to meet the intent of this chapter.

1411 (6) Puget Sound marine sediment impact zone maximum nonanthropogenically affected
1412 sediment criteria. Whenever the nonanthropogenically affected sediment quality is of a lower
1413 quality (i.e., higher chemical concentrations, higher levels of adverse biological response, or
1414 posing a higher threat to human health) than the applicable sediment impact zone maximum
1415 criteria established under this section, the existing sediment chemical and biological quality shall
1416 be identified on an area-wide basis as determined by the department, and used in place of the
1417 standards of WAC 173-204-420.

1418

1419 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-420, filed 12/29/95, effective
1420 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
1421 91-08-019 (Order 90-41), § 173-204-420, filed 3/27/91, effective 4/27/91.]

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1423

PART V

SEDIMENT CLEANUP STANDARDS

AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

WAC 173-204-500 Sediment cleanup decision process and policies. ~~((1) The standards of WAC 173-204-500 through 173-204-590 are procedures which specify a cleanup decision process for managing contaminated sediments. These procedures include:~~

~~(a) Screening sediment station clusters of potential concern;~~

~~(b) Conducting hazard assessments to identify cleanup sites;~~

~~(c) Ranking sites identified in (b) of this subsection;~~

~~(d) Determining the appropriate site cleanup authority;~~

~~(e) Conducting a site cleanup study;~~

~~(f) Determining the site-specific cleanup standard;~~

~~(g) Selecting a site cleanup action; and~~

~~(h) Where necessary, authorizing a cleanup site sediment recovery zone.~~

~~(2) Under this chapter, the department may require or take those actions necessary to implement the standards of WAC 173-204-500 through 173-204-580 for all contaminated sediment stations on the inventory identified in WAC 173-204-350.~~

~~(3) The cleanup process and procedures under this chapter and under other laws may be combined. The department may initiate a cleanup action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa.~~

~~(4) It is the policy of the department to manage sediment cleanup actions towards the goal of reducing and ultimately eliminating adverse effects on biological resources and significant health threats to humans from sediment contamination. To achieve this goal, the department will pursue sediment cleanup decisions and cleanup standards that are as close as practicable to the sediment quality standards of WAC 173-204-320 through 173-204-340, including the consideration of net environmental effects, cost and technical feasibility. The department shall only authorize sediment recovery zones so as to minimize the number, size and adverse effects of all zones, with the intent to eliminate the existence of all such zones whenever practicable.~~

~~(5) The department shall endeavor to make sediment cleanup decisions in an expeditious manner, as soon as all needed information is available, consistent with the availability of department resources and the priority of the cleanup site:))~~ **(1) Applicability.**

(a) This part is promulgated under the authority of chapter 70.105D RCW, the Model Toxics Control Act. Sediment cleanup standards and the other cleanup criteria of WAC 173-204-500 through 173-204-590 are not sediment quality standards and shall only be used for purposes specified in chapter 70.105D RCW. Sediment quality standards are established under Part III of this chapter under the authority of chapters 70.105D and 90.48 RCW.

(b) This section describes the decision process and associated policies and principles governing the investigation and cleanup of contaminated sediment at sites under chapter

1464 70.105D RCW. If there are any inconsistencies between this section and a specifically
1465 referenced section, the specifically referenced section shall govern.

1466 (2) Cleanup decision process. In general, the process for cleanup of contaminated
1467 sediments includes the following steps:

1468 (a) Identifying sediment station clusters of potential concern (WAC 173-204-510);

1469 (b) Identifying cleanup sites for further evaluation (WAC 173-204-520);

1470 (c) Evaluating sites identified in (b) of this subsection (WAC 173-204-530);

1471 (d) Determining the appropriate site cleanup authority (WAC 173-204-540);

1472 (e) Conducting a remedial investigation and feasibility study (WAC 173-204-550);

1473 (f) Establishing the applicable sediment cleanup standards (WAC 173-204-560);

1474 (g) Selecting a cleanup action (WAC 173-204-570);

1475 (h) Documenting the cleanup action decision and soliciting public review of that decision
1476 (WAC 173-204-580); and

1477 (i) Where necessary, authorizing a sediment recovery zone (WAC 173-204-590).

1478 (3) Coordination with other laws. The cleanup process and procedures under this
1479 chapter and under other laws may be combined.

1480 (4) Cleanup process expectations. The department has the following expectations
1481 regarding the cleanup process for contaminated sediment sites. The department recognizes there
1482 may be sites where cleanup actions conforming to these expectations are not appropriate:

1483 (a) Scale of cleanups. Sediment contamination can be widespread with multiple
1484 contaminants from multiple sources that have been intermingled and dispersed by natural
1485 processes and human activity. It is the department's intent to address this widespread
1486 contamination using multiple approaches that lead to cleanup as effectively and efficiently as
1487 possible. This may include:

1488 (i) The establishment of "sediment cleanup unit(s)" within a site, and the expedited
1489 cleanup of those units consistent with the cleanup strategy and broader scale toxics reduction and
1490 source control strategies;

1491 (ii) Coordinating cleanup of multiple sites and sediment cleanup units on a bay-wide,
1492 area-wide, or watershed-wide scale; and

1493 (iii) Use of source control measures to minimize future contamination.

1494 (b) Recontamination. Recontamination of sediment at remediated sites or sediment
1495 cleanup units may occur from ongoing discharges. It is the department's expectation that further
1496 cleanup of recontamination will not be required by the person(s) conducting the initial cleanup
1497 when the person(s) can demonstrate, upon department approval, that the recontamination is
1498 caused by a source or a permitted release not under the authority or responsibility of the
1499 person(s) conducting the initial cleanup.

1500 (c) Restoration time frame. The department expects that the sediment component of sites
1501 and sediment cleanup units with limited contamination will be restored within a single
1502 construction season using active cleanup actions such as dredging or capping. However, the
1503 department recognizes longer restoration time frames may be necessary at sites with more
1504 extensive or widespread contamination, including sites with ubiquitous chemicals from

1505 numerous point and nonpoint source discharges. At such sites, the department expects cleanup
1506 actions will include a combination of active and passive cleanup actions and will achieve
1507 restoration as soon as practicable following completion of the active cleanup actions.

1508 (d) Sediment recovery zones. At sites or sediment cleanup units where the cleanup action
1509 cannot practicably achieve sediment cleanup standards within ten years after start of the cleanup
1510 action, the department expects that a sediment recovery zone will be established and managed in
1511 accordance with WAC 173-204-590.

1512 (e) Compliance monitoring. The department expects that post-cleanup monitoring will be
1513 conducted at sites and sediment cleanup units to verify compliance with approved sediment
1514 cleanup standards. Monitoring will typically include analysis of sediment chemistry at a
1515 minimum, but may also include bioassays, tissue chemistry, pore water and surface water testing,
1516 and more intense discharge monitoring than would normally occur under a discharge permit
1517 where circumstances warrant.

1518 (f) Scope of information. The scope of information needed to adequately characterize
1519 different site or sediment cleanup units will vary depending on site conditions and complexity. It
1520 is the department's expectation that sufficient information will be gathered in as few sampling
1521 events as feasible to enable appropriate decisions and cleanups to proceed expeditiously.

1522 (g) Timely decisions. The department shall endeavor to make sediment cleanup
1523 decisions in an expeditious manner, as soon as all information required by the department is
1524 available, consistent with the availability of department resources and the priority of the cleanup
1525 site.

1526 **(5) Relationship between sediment cleanup standards and cleanup actions.** It is the
1527 policy of the department to establish sediment cleanup standards and select cleanup actions that
1528 support the goal of reducing and ultimately eliminating adverse effects on biological resources
1529 and risks to human health from sediment contamination.

1530 (a) Sediment cleanup standards. WAC 173-204-560 establishes requirements for
1531 sediment cleanup standards. Sediment cleanup standards consist of sediment cleanup levels for
1532 individual contaminants and the locations within the site or sediment cleanup unit where the
1533 sediment cleanup levels must be met (points of compliance or biologically active zone).
1534 Sediment cleanup standards may also include other regulatory requirements that apply to a
1535 cleanup action for contaminated sediment because of the type of action and/or location of the site
1536 (applicable local, state, and federal laws).

1537 (i) Sediment cleanup levels. A sediment cleanup level is the concentration or level of
1538 biological effects for a contaminant in sediment that is determined by the department to be
1539 protective of human health and the environment. The sediment cleanup level is established in
1540 accordance with the requirements in WAC 173-204-560(2). The sediment cleanup level shall be
1541 the sediment cleanup objective and shall be adjusted upward as required based on what is
1542 technically possible and whether meeting the sediment cleanup objective will have an adverse
1543 impact on the aquatic environment, including natural resources and habitat. A sediment cleanup
1544 level may not be adjusted upward above the cleanup screening level. The sediment cleanup
1545 level, in combination with the point of compliance or biologically active zone, typically defines
1546 the area or volume of sediment at a site or sediment cleanup unit that must be addressed by the
1547 cleanup action.

1548 (A) Sediment cleanup objectives. The sediment cleanup objective defines the goal for
1549 protection of human health and environment. This goal is expected to be achieved through a
1550 combination of cleanup actions and source control. The sediment cleanup objective is
1551 established in accordance with the requirements in WAC 173-204-560(3). If a risk-based
1552 concentration is below the natural background level or level that can be reliably measured, then
1553 the sediment cleanup objective is established at a concentration equal to the practical quantitation
1554 limit or natural background, whichever is higher.

1555 (B) Cleanup screening level. The cleanup screening level is established in accordance
1556 with the requirements in WAC 173-204-560(4). If a risk-based concentration is below the
1557 regional background level or level that can be reliably measured, then the cleanup screening
1558 level is established at a concentration equal to the practical quantitation limit or regional
1559 background, whichever is higher.

1560 (ii) Points of compliance. A point of compliance is the location within the site where
1561 sediment cleanup levels must be attained. Points of compliance are established in accordance
1562 with the requirements in WAC 173-204-560(6). Points of compliance may be established within
1563 the biologically active zone to protect aquatic life or may be established within a different
1564 location to protect human health.

1565 (b) Cleanup actions. WAC 173-204-570 establishes requirements for cleanup actions for
1566 contaminated sediment. The cleanup actions must achieve sediment cleanup standards within
1567 the site or sediment cleanup unit, as applicable. Cleanup actions usually consist of a
1568 combination of active and passive actions. At sites where there are ongoing sources, the cleanup
1569 actions will usually also include source control measures.

1570 (i) Active cleanup actions. Sediment contamination may be addressed by active cleanup
1571 actions such as dredging, capping, treatment, and enhanced natural recovery. Active cleanup
1572 actions are preferred over passive cleanup actions.

1573 (ii) Passive cleanup actions. Passive cleanup actions, such as monitored natural recovery
1574 and institutional controls, may be used in combination with active cleanup actions and source
1575 control measures to address sediment contamination.

1576 (iii) Source control. Source control measures consist of controlling ongoing sources to
1577 limit discharges of contaminants that accumulate in sediment. Source control measures may be
1578 necessary part of a cleanup action to prevent recontamination of the site or sediment cleanup unit
1579 above the sediment cleanup level.

1580 (c) Presumption of protectiveness. Sediment cleanup actions that achieve the sediment
1581 cleanup levels at the applicable points of compliance are presumed to be protective of human
1582 health and the environment.

1583 **(6) Applicability of new sediment cleanup standards.**

1584 (a) The department shall determine the sediment cleanup standards that apply to a site or
1585 sediment cleanup unit based on the rules in effect under this chapter at the time the department
1586 issues a final cleanup action plan or similar decision document as described in WAC 173-204-
1587 580.

1588 (b) A site cleaned up with sediment cleanup standards determined in (a) of this subsection
1589 shall not be subject to further cleanup action due solely to subsequent amendments of the
1590 requirements in this chapter governing the establishment of sediment cleanup standards, unless

1591 the department determines on a case-by-case basis that the previous cleanup action is no longer
1592 sufficiently protective of human health and the environment.

1593

1594 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
1595 019 (Order 90-41), § 173-204-500, filed 3/27/91, effective 4/27/91.]

1596 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

1597

1598 **WAC 173-204-510 ((Screening)) Identifying sediment station clusters of potential**
1599 **concern.** (1) ~~((Using the sediment quality standards inventory of WAC 173-204-350,))~~ **Data**
1600 **analysis.** The department shall analyze the sediment sampling data to identify station clusters of
1601 potential concern and station clusters of low concern ~~((per the standards of this section))~~. Station
1602 clusters of potential concern shall be further evaluated using the hazard assessment standards of
1603 WAC ~~((173-204-530))~~ 173-204-520. Station clusters of low concern shall remain on the
1604 inventory and no further cleanup action determinations shall be ~~((taken))~~ made by the department
1605 until the stations are reexamined per subsection (5) of this section.

1606 (2) **Station clusters.** A station cluster is defined as any number of stations ~~((from the~~
1607 ~~inventory of WAC 173-204-350))~~ that are determined by the department to be spatially and
1608 chemically similar. For the purpose of identifying a station cluster of potential concern ~~((per the~~
1609 ~~procedures of this subsection))~~, three stations with the highest contaminant concentration for any
1610 particular contaminant or the highest degree of biological effects as identified in WAC ~~((173-~~
1611 ~~204-520))~~ 173-204-562 and 173-204-563 are selected from a station cluster. This procedure may
1612 be repeated for multiple chemicals ~~((identified in WAC 173-204-520))~~, recognizing that the three
1613 stations with the highest concentration for each particular contaminant may be different and the
1614 respective areas for all chemicals may overlap. The department shall ~~((review the inventory of~~
1615 ~~WAC 173-204-350 to))~~ identify station clusters of potential concern ~~((via the following))~~ using
1616 the process((:)) specified in this subsection.

(a) Identify, if available, the three stations within a station cluster with the highest concentration of each chemical contaminant identified in WAC ~~((173-204-520, Cleanup screening levels criteria; and))~~ 173-204-562 and 173-204-563.

~~((b))~~ (i) For each contaminant identified in (a) of this subsection, determine the average concentration for the contaminant at the three stations identified ~~((in (a) of this subsection; and))~~.

~~((c) Identify if available, three stations within the station cluster with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1); and~~

~~((d))~~ (ii) If the average chemical contaminant concentration for any three stations identified in (a) of this subsection, exceeds the applicable cleanup screening level in WAC ~~((173-204-520))~~ 173-204-562 and 173-204-563, then the station cluster ~~((is))~~ shall be defined as a station cluster of potential concern~~((; and))~~.

~~((e))~~ (b) Identify, if available, three stations within the station cluster with the highest level of biological effects for the biological tests identified in WAC 173-204-562 and 173-204-563. If the level of biological effects at each of the three stations from ~~((e))~~ (b) of this subsection exceeds the cleanup screening level in WAC ~~((173-204-520))~~ 173-204-562 and 173-204-563, then the station cluster is defined as a station cluster of potential concern~~((; and))~~.

~~((f) If neither of the conditions of (d) or (e) of this subsection apply, then the station cluster is defined as a station cluster of low concern; and~~

~~((g))~~ (c) If the department determines that ~~((any))~~ each of three stations within a station cluster exceed the ~~((sediment cleanup screening))~~ following criteria, then the station cluster shall be defined as a station cluster of potential concern:

1638 (i) The applicable cleanup screening levels human health or background criteria ((or)) in
1639 WAC 173-204-560(4);

1640 (ii) The other toxic, radioactive, biological, or deleterious substances criteria in WAC
1641 173-204-562 and 173-204-563, as applicable; or

1642 (iii) The nonanthropogenically affected criteria of WAC ((173-204-520, then the station
1643 cluster is defined as a station cluster of potential concern)) 173-204-562 and 173-204-563, as
1644 applicable.

1645 (d) If neither of the conditions of (a)(ii) or (b)(i) or (c) of this subsection apply, then the
1646 station cluster is defined as a station cluster of low concern.

1647 (3) **Notification.** When a station cluster of potential concern has been identified, the
1648 department shall issue notification to the landowners, lessees, onsite dischargers, adjacent
1649 dischargers, and other persons determined appropriate by the department prior to the
1650 department's conducting a hazard assessment as defined in WAC 173-204-530.

1651 (4) **No further cleanup action.** No further cleanup action determinations shall be taken
1652 with station clusters of low concern until ~~((the inventory of WAC 173-204-350 is updated))~~ new
1653 information is available and the stations reexamined per subsection (5) of this section. Station
1654 clusters of low concern shall receive no further consideration for active cleanup, unless new
1655 information indicates an increase of chemical contamination at the stations in question. Station
1656 clusters of low concern shall be evaluated by the department for improved source control and/or
1657 monitoring requirements of this chapter.

1658 (5) **Reevaluation.** The department may at any time reexamine a station or group of
1659 stations to reevaluate and identify station clusters of potential concern following the procedures
1660 of subsection (2) of this section when new information demonstrates to the department's
1661 satisfaction that reexamination actions are necessary to fulfill the purposes of WAC 173-204-500
1662 through 173-204-590.

1663

1664 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-510, filed 12/29/95, effective
1665 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
1666 91-08-019 (Order 90-41), § 173-204-510, filed 3/27/91, effective 4/27/91.]

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1670 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

1671

1672 **WAC 173-204-520 Hazard assessment and site identification.**

1673 (1) **Purpose.** A hazard assessment shall be performed to gather existing and available
1674 information to further characterize each station cluster of potential concern identified per WAC
1675 173-204-510.

1676 (2) **Hazard assessment requirements.** ~~((Onsite))~~ On-site dischargers, lessees,
1677 landowners, and adjacent dischargers shall submit, upon the department's request, all existing
1678 and available information or, if determined necessary by the department, shall perform sampling
1679 for a known or suspected release that would enable the department to:

1680 (a) Determine the concentration and/or areal extent and depth of sediment contamination
1681 at the station cluster of potential concern by:

1682 (i) Identifying the contaminants exceeding the applicable sediment ~~((quality standards))~~
1683 cleanup objectives of WAC ~~((173-204-320 through 173-204-340))~~ 173-204-562 and 173-204-
1684 563;

1685 (ii) Identifying individual stations within the station cluster of potential concern which
1686 exceed the sediment cleanup screening levels criteria of WAC ~~((173-204-520))~~ 173-204-562 and
1687 173-204-563;

1688 (iii) Identifying the level of toxicity to the applicable biological test organisms of WAC
1689 ~~((173-204-320 through 173-204-340))~~ 173-204-562 and 173-204-563;

(iv) Determining where the applicable sediment (~~((quality standards))~~) cleanup objectives of WAC (~~((173-204-320 through 173-204-340))~~) 173-204-562 and 173-204-563, for any given contaminant, is met;

(v) Determining if concentrations of chemicals exist that (~~((potentially present a significant threat to human health))~~) exceed applicable cleanup screening levels of WAC 173-204-560;

(vi) Defining the location where the (~~((minimum cleanup))~~) cleanup screening level as defined in WAC (~~((173-204-570))~~) 173-204-560 is met.

(b) Identify and characterize the present and historic source or sources of the contamination.

(c) Identify the location of sediment impact zones authorized under WAC 173-204-415.

(d) Identify sensitive resources in the vicinity of the station cluster of potential concern.

(e) (~~((Provide))~~) Compile other information as determined necessary by the department for (~~((ranking))~~) evaluating sites under WAC (~~((173-204-540))~~) 173-204-530.

~~((3) The department shall also)~~ (f) Compile existing and available information from other federal, state, and local governments (~~((that pertain to the topics in subsection (2) of this section))~~).

~~((4))~~ **(3) Identification of cleanup sites.** To identify cleanup sites, the department shall use all available information of acceptable quality gathered from the hazard assessment to evaluate station clusters of potential concern identified pursuant to WAC 173-204-510(2). For the purpose of identifying a cleanup site per the procedures of this subsection, three stations with

the highest contaminant concentration for any particular contaminant or the highest degree of biological effects as identified in WAC ~~((173-204-520))~~ 173-204-562 and 173-204-563 are selected from a station cluster of potential concern. This procedure may be repeated for multiple chemicals ~~((identified in WAC 173-204-520;))~~ recognizing that the three stations with the highest concentration for each particular contaminant may be different and the respective areas for all chemicals may overlap. The department shall review the list of station clusters of potential concern to identify cleanup sites via the following process:

(a) ~~((Identify if available, three stations within the station cluster of potential concern with the highest level of biological effects for the biological tests identified in WAC 173-204-315(1).))~~

~~((b))~~ Station clusters of potential concern ~~((where the level of biological effects for any three stations within the station cluster of potential concern exceeds the cleanup screening levels of WAC 173-204-520(3)))~~ that meet the conditions in WAC 173-204-510 (2)(a)(ii) or (b)(i) shall be defined as cleanup sites.

~~((c) Identify if available, the three stations within a station cluster of potential concern with the highest concentration of each chemical contaminant identified in WAC 173-204-520, Cleanup screening levels criteria.))~~ (b) For the purpose of identifying a cleanup site per the procedures of this subsection, stations that meet the biological standards of WAC ~~((173-204-520))~~ 173-204-562(3) through 173-204-563(3) shall not be included in the evaluation of chemical contaminant concentrations for benthic community toxicity.

~~((d) For each contaminant identified in (c) of this subsection, determine the average concentration for the contaminant at the three stations identified in (c) of this subsection.~~

1733 ~~(e) Station clusters of potential concern for which any average chemical concentration~~
1734 ~~identified in (d) of this subsection exceeds the cleanup screening level chemical criteria of Table~~
1735 ~~III shall be defined as cleanup sites.~~

1736 ~~((f))~~ (c) After completion of the hazard assessment, if ~~((neither of))~~ the conditions of (a)
1737 or (b) ((or (e))) of this subsection do not apply, then the station cluster is defined as a station
1738 cluster of low concern for benthic community toxicity.

1739 ~~((g))~~ (d) Station clusters of potential concern where the department determines that
1740 ~~((any))~~ each of three stations within the station cluster of potential concern exceed the ~~((sediment~~
1741 ~~cleanup screening levels))~~ applicable cleanup screening level human health and background
1742 criteria in WAC 173-204-560(4) or the other toxic, radioactive, biological, or deleterious
1743 substances criteria or the nonanthropogenically affected criteria of WAC ~~((173-204-520))~~ 173-
1744 204-562 and 173-204-563, ((shall)) may be defined as cleanup sites or areas for potential further
1745 investigation.

1746

1747 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-530, filed 12/29/95, effective
1748 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
1749 91-08-019 (Order 90-41), § 173-204-530, filed 3/27/91, effective 4/27/91.]

1750

1751 AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

1752

1753 **WAC 173-204-530 ((Ranking)) Evaluation and ((list)) listing of sites.** (1) **Purpose.**

1754 The department shall prepare and maintain a list of contaminated sediment sites in the order of
1755 their relative ((hazard ranking)) risk to human health and the environment. From this list, the
1756 department shall select sites where action shall be taken.

1757 (2) **Site ((ranking)) evaluation.** The department shall evaluate each sediment cleanup
1758 site identified by the procedures in WAC ((173-204-530)) 173-204-520 on a consistent basis
1759 using ((the procedure described in *Sediment Ranking System ("SEDRANK"), January 1990, and all*
1760 *additions and revisions thereto or other*)) procedures approved by the department. The purpose
1761 of ((ranking)) the evaluation is to estimate, based on technical information compiled during the
1762 hazard assessment procedures in WAC ((173-204-530)) 173-204-520, the relative potential risk
1763 posed by the site to human health and the environment. Information obtained during the hazard
1764 assessment, ((plus any additional data specified in "SEDRANK,")) shall be included in the site
1765 ((hazard ranking)) evaluation.

1766 (3) **Considerations in ((ranking)) site evaluation.** In conducting sediment site
1767 ((ranking)) evaluations, the department shall assess both human health hazard and ecological
1768 hazard, and consider chemical toxicity, affected resources, and site characteristics for both types
1769 of hazards. The department shall also use best professional judgment and other information as
1770 necessary on a case-by-case basis to conduct site ((ranking)) evaluations.

1771 (4) **Site ((reranking)) reevaluations.** The department may, at its discretion, ((rerank))
1772 reevaluate a site. To ((rerank)) reevaluate a site, the department shall use any additional

1773 information within the scope of the ~~((hazard ranking))~~ evaluation criteria and best professional
1774 judgment to establish that a significant change ~~((in rank))~~ should result.

1775 (5) ~~((List))~~ **Listing of ((ranked)) sites.**

1776 (a) Contaminated sediment sites ~~((that are ranked via "SEDRANK"))~~ shall be placed on a
1777 list ~~((in the order of their relative hazard ranking))~~. The list shall describe the current status of
1778 cleanup action at each site ~~((and be updated on an annual basis. The department may change a
1779 site's status to reflect current conditions on a more frequent basis. The status for each site shall
1780 be identified as one or more of the following:~~

1781 ~~((i) Sites awaiting cleanup action;~~

1782 ~~((ii) Sites where voluntary, incidental, partial or department initiated cleanup actions, as
1783 defined in WAC 173-204-550, are in progress;~~

1784 ~~((iii) Sites where a cleanup action has been completed and confirmational monitoring is
1785 underway;~~

1786 ~~((iv) Sites with sediment recovery zones authorized under WAC 173-204-590; and/or~~

1787 ~~((v) Other categories established by the department)).~~

1788 (b) The department shall routinely publish and make the list available to be used in
1789 conjunction with a review of ongoing and proposed regulatory actions to determine where and
1790 when a cleanup action should be taken. The department shall also make the list available to
1791 landowners and dischargers at or near listed sites, and to the public.

1792

1793 **(6) Site delisting.**

1794 (a) The department may remove a site from the list only after it has determined that:

1795 (i) All cleanup actions ~~((except)), including~~ confirmational monitoring ~~((have been~~
1796 ~~completed and compliance with the site cleanup study and report))~~ and all other actions required
1797 in the cleanup action plan or equivalent document under WAC 173-204-580, have been
1798 completed and all sediment cleanup standard(s) ~~((has))~~ have been achieved; or

1799 (ii) The listing of the site was erroneous.

1800 (b) A site owner or operator may request that a site be removed from the list by
1801 submitting a petition to the department. The petition shall state the reason for the site delisting
1802 request, and as determined appropriate by the department, shall include thorough documentation
1803 of all investigations performed, all cleanup actions taken, and all compliance monitoring data
1804 and results to demonstrate to the department's satisfaction that the ~~((site))~~ sediment cleanup
1805 standards have been achieved. The department may require payment of costs incurred~~((;~~
1806 ~~including an advance deposit,))~~ for review and verification of the work performed. The
1807 department shall review such petitions, however the timing of the review shall be at its discretion
1808 and as resources may allow.

1809 (c) The department shall maintain a record of sites that have been removed from the list
1810 under (a) of this subsection. This record shall be made available to the public on request.

1811 (d) The department shall provide public notice and an opportunity to comment when the
1812 department proposes to remove a site from the list.

1813 (7) **Site relisting** ~~((of sites))~~. The department may relist a site which has previously been
1814 removed if it determines that the site requires further cleanup action.

1815 (8) ~~((Delisting notice. The department shall provide public notice and an opportunity to
1816 comment when the department proposes to remove a site from the list.~~

1817 ~~((9)))~~ **Relationship to hazardous sites list.** The department may additionally evaluate
1818 cleanup sites on the site list developed under subsection (5) of this section for possible inclusion
1819 on the hazardous sites list published under WAC 173-340-330.

1820

1821 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
1822 019 (Order 90-41), § 173-204-540, filed 3/27/91, effective 4/27/91.]

1823

1824

1825 AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

1826

1827 **WAC 173-204-540 Types of cleanup and authority. (1) Purpose.** ~~((The department~~
1828 ~~acknowledges that cleanups of contaminated sediment sites can occur under the authority of~~
1829 ~~chapter 90.48 or 70.105D RCW. Sediment cleanups may also be initiated by))~~ Cleanup actions
1830 at sites and sediment cleanup units may be conducted under the authority of chapter 70.105D
1831 RCW or the federal government pursuant to the Comprehensive Environmental Response,
1832 Compensation and Liability Act (42 U.S.C. §§ 9601 et seq.) (CERCLA). This section describes
1833 the department's role in ~~((department initiated))~~ these and other cleanup actions.

1834 **(2) Administrative authority.** The department shall use best professional judgment and
1835 other information as necessary on a case-by-case basis to determine the appropriate
1836 administrative authority for conducting~~((;))~~ or requiring ~~((contaminated sediment))~~ cleanup
1837 actions ~~((based on, but not limited to,))~~. The department may initiate a cleanup action under this
1838 chapter or may determine that another authority is more appropriate. When determining the
1839 appropriate administrative authority at a site, the department's decision may include the
1840 following considerations:

1841 (a) Source of contaminants requiring cleanup including spills, dredging actions, and
1842 wastewater and/or storm water discharges;

1843 (b) Significance of contamination threat to human health and the environment including
1844 the degree of contamination and types and number of contaminants;

1845 (c) Public (~~(perception)~~) comments received concerning the contaminant threat to human
1846 health and the environment;

1847 (d) (~~(Personal or corporate financial status of the landowner(s) and/or discharger(s);~~

1848 ~~(e))~~) Enforcement compliance history of the landowner(s) and/or discharger(s);

1849 ~~((f))~~ (e) Status of existing or pending federal, state, or local legal orders or
1850 administrative actions; and

1851 ~~((g))~~ (f) Size of cleanup action proposed or determined necessary.

1852 (3) (~~The types of cleanup actions below establish scenarios recognized by the~~
1853 ~~department which may occur to effect cleanup of contaminated sediment sites. All of these types~~
1854 ~~of cleanup actions shall be subject to administrative review and approval of the department under~~
1855 ~~chapters 90.48 and/or 70.105D RCW.~~

1856 ~~(a) Department initiated cleanup. Department initiated cleanup actions occur when the~~
1857 ~~department uses its authority under chapter 90.48 and/or 70.105D RCW to conduct or require~~
1858 ~~and/or otherwise effect cleanup to meet the intent of this chapter.~~

1859 ~~(b) Voluntary cleanup. Voluntary cleanup actions are initiated by parties other than the~~
1860 ~~department. The department shall encourage voluntary cleanup actions whenever possible, and~~
1861 ~~as early as possible, to meet the intent of this chapter.~~

1862 ~~(c) Incidental cleanup. Incidental cleanup actions are conducted when other state or~~
1863 ~~federally permitted activities are ongoing in and/or around the contaminated sediment site. Early~~
1864 ~~coordination of incidental cleanup actions with the department is encouraged to meet the intent~~
1865 ~~of this chapter, chapter 70.105D RCW, and chapter 90.48 RCW, as appropriate.~~

~~(d) Partial cleanup. Partial cleanup actions may be conducted when completion of cleanup study requirements under WAC 173-204-560 has identified and proposed discrete site units and cleanup standards, the department has approved the selection of the partial cleanup alternative per the standards of WAC 173-204-580, and the department has determined that awaiting action or decision on conducting a complete site cleanup would have a net detrimental effect on the environment or human health.~~

~~(e) CERCLA cleanup. Pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act, the department may identify chapter 173-204 WAC as an applicable state requirement for cleanup actions conducted by the federal government.))~~ **Types of cleanups.** The following administrative options may be used to conduct cleanup actions at sites and sediment cleanup units. These options shall be subject to review and approval by the department under chapter 70.105D RCW.

(a) Department-conducted or supervised cleanups. The department may conduct or require others to conduct cleanup actions at sites or sediment cleanup units under chapter 70.105D RCW.

(b) Federal-conducted or supervised cleanups. The federal government may conduct or require others to conduct cleanup actions at sites or sediment cleanup units under CERCLA. When evaluating federal cleanup actions, the department shall consider all requirements in this chapter authorized under chapter 70.105D RCW to be legally applicable requirements under 42 U.S.C. 9621(d). Federal cleanup actions may be used by the department to meet the requirements of this chapter provided:

(i) The cleanup action is consistent with the requirements in this chapter;

1888 (ii) The state has concurred with the cleanup action; and

1889 (iii) An opportunity was provided for the public to comment on the cleanup action.

1890 (c) **Incidental cleanups.** Incidental cleanup actions may be conducted when other state
1891 or federally permitted activities are ongoing in and/or around the site. Early coordination of
1892 incidental cleanup actions with the department is encouraged to ensure such actions meet the
1893 requirements in this chapter and chapter 70.105D RCW.

1894 _[Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
1895 019 (Order 90-41), § 173-204-550, filed 3/27/91, effective 4/27/91.]

1896 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

1897

1898 **WAC 173-204-550 ((Cleanup)) Remedial investigation and feasibility study.** (1)

1899 **Purpose.** ~~((This section describes cleanup study plan and report standards which meet the intent~~
1900 ~~of cleanup actions required under authority of chapter 90.48 and/or 70.105D RCW, and/or this~~
1901 ~~chapter. Cleanup actions required under authority of chapter 70.105D RCW shall also meet all~~
1902 ~~standards of chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation. The~~
1903 ~~cleanup study plan and report standards in this chapter include activities to collect, develop, and~~
1904 ~~evaluate sufficient information to enable consideration of cleanup alternatives and selection of a~~
1905 ~~site specific sediment cleanup standard prior to making a cleanup decision. Each person~~
1906 ~~performing a cleanup action to meet the intent of this chapter shall submit a cleanup study plan~~
1907 ~~and cleanup study report to the department for review and written approval prior to~~
1908 ~~implementation of the cleanup action. The department may approve the cleanup study plan as~~
1909 ~~submitted, may approve the cleanup study plan with appropriate changes or additions, or may~~
1910 ~~require preparation of a new cleanup study plan.)) The purpose of a remedial~~
1911 investigation/feasibility study is to collect, develop, and evaluate sufficient information regarding
1912 a site or sediment cleanup unit for the department to establish sediment cleanup standards and
1913 select a cleanup action under this chapter.

1914 **(2) Scope ((of cleanup study plan)).** The scope of a ~~((cleanup study plan shall))~~
1915 remedial investigation/feasibility study depends on ((the specific site informational needs, the
1916 site hazard,)) many factors, including the nature and extent of contamination, the exposure
1917 pathways of concern, the natural resources potentially impacted by the contamination, the

characteristics of the site or sediment cleanup unit, the type of cleanup action ((proposed))
alternatives likely to be evaluated under WAC 173-204-570 through 173-204-580, and the
authority cited by the department to require cleanup. ((In establishing the necessary scope of the
cleanup study plan, the department may consider cost mitigation factors, such as the financial
resources of the person(s) responsible for the cleanup action.)) In all cases, sufficient
information must be collected, developed, and evaluated to enable the ~~((appropriate selection of~~
~~a))~~ department to establish sediment cleanup standards ((under WAC 173-204-570 and a cleanup
action decision under WAC 173-204-580. The sediment cleanup study plan shall address:)) and
select cleanup actions under this chapter.

(3) Administrative requirements.

(a) Unless otherwise directed by the department, a remedial investigation/feasibility study
must be completed before a cleanup action is selected under WAC 173-204-570 and 173-204-
580.

(b) Before conducting a remedial investigation, a work plan must be submitted to and
approved by the department.

(c) As directed by the department, a remedial investigation and a feasibility study may be
conducted as separate steps in the cleanup process and submitted as separate reports or combined
into a single step and report.

(d) Remedial investigation and feasibility study reports must be submitted to the
department for review and approval.

1938 **(4) Remedial investigation work plan.** The remedial investigation work plan shall
1939 include the following information: (a) Public ~~((information/education))~~ participation plan;
1940 (b) ~~((Site investigation and cleanup alternatives evaluation;~~
1941 ~~(e)))~~ A summary of available information regarding the site;
1942 (c) A conceptual site model;
1943 (d) Cleanup action alternatives that are likely to be considered in the feasibility study;
1944 (e) Sampling plan and recordkeeping in compliance with WAC 173-204-600 through
1945 173-204-610 and department guidance; and
1946 ~~((d)))~~ (f) Site safety((-
1947 ~~(3) Cleanup study plan public information/education requirements))~~ plan to meet the
1948 requirements of the Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.) and
1949 the Washington Industrial Safety and Health Act (chapter 49.17 RCW), and regulations
1950 promulgated pursuant thereto. These requirements are subject to enforcement by the designated
1951 federal and state agencies. Actions taken by the department under this chapter do not constitute
1952 an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational
1953 Safety and Health Act.
1954 (g) A schedule for completion of the remedial investigation/feasibility study; and
1955 (h) Other information as required by the department.
1956 **(5) Public participation plan requirements.** The ~~((cleanup study))~~ public participation
1957 plan shall encourage coordinated and effective public involvement commensurate with the nature

of the proposed cleanup action, the level of public concern, and the existence of, or potential for adverse effects on biological resources and/or a threat to human health. The ~~((cleanup study))~~ plan shall ~~((address proposed activities for))~~ include the following ~~((subjects))~~ information:

(a) When public notice will occur, the length of the comment periods accompanying each notice, the potentially affected vicinity, and any other areas to be provided notice;

(b) Where public information ~~((repositories))~~ will be located to provide ~~((site))~~ information ~~((to the public))~~ about the site;

(c) Methods for identifying the public's concerns~~((, e.g.,))~~ such as interviews, questionnaires, and community group meetings~~((, etc.))~~;

(d) Methods for providing information to the public~~((, e.g.,))~~ such as press releases, public meetings, fact sheets, ~~((etc.))~~ and listservs;

(e) Coordination of public participation requirements mandated by other federal, state, or local laws;

(f) Amendments to the planned public involvement activities; and

(g) Any other ~~((elements that))~~ information required by the department ~~((determines to be appropriate for inclusion in the cleanup study plan))~~.

~~((4) Cleanup study plan site investigation and cleanup alternatives evaluation requirements. The content of the cleanup study plan for the site investigation and cleanup alternatives evaluation is determined by the type of cleanup action selected as defined under WAC 173-204-550. As determined by the department, the cleanup study plan shall address the following subjects:))~~

1979 **(6) Remedial investigation report.** The remedial investigation report shall include the
1980 following information:

1981 (a) General site information. General information, including: Project title; name,
1982 address, and phone number of project coordinator; legal description of the cleanup site; area and
1983 volume dimensions of the site; present and past owners and operators; present owners and
1984 operators of contaminant source discharges to the site~~((; chronological listing of past owners and~~
1985 ~~operators of contaminant source discharges to the site))~~ and their respective operational history;
1986 and other pertinent information ~~((determined))~~ required by the department.

1987 (b) Site conditions map. An existing site conditions map which illustrates site features as
1988 follows:

1989 (i) Property boundaries~~((;))~~;

1990 (ii) The site boundary as defined by the individual contaminants exceeding the
1991 ~~((applicable))~~ proposed sediment ~~((quality))~~ cleanup standards ~~((of))~~ as defined in WAC ((173-
1992 ~~204 320 through 173 204 340))~~ 173-204-560. Delineations shall be made at the point where the
1993 concentration of the contaminants would meet the:

1994 (A) Proposed sediment cleanup standards;

1995 (B) Proposed sediment cleanup objectives; ~~((and~~

1996 ~~(B) Minimum cleanup level))~~ (C) Proposed cleanup screening levels; and

1997 ~~((C) Recommended cleanup standards.))~~ (D) Proposed sediment cleanup unit boundary,
1998 if applicable;

1999 (iii) Surface and subsurface structures topography((-

2000 ~~(iv) Surface and subsurface structures.~~

2001 ~~(v))~~;

2002 (iv) Utility lines((-);

2003 ~~((vi))~~ (v) Navigation lanes((-

2004 ~~(vii) Current and ongoing sediment sources.~~

2005 ~~(viii))~~; and

2006 (vi) Other pertinent information determined by the department.

2007 (c) Site investigation. Sufficient investigation to characterize the distribution of sediment

2008 contamination (~~(present at the site)~~), and the threat or potential threat to human health and the

2009 environment. Where applicable to the site, these investigations shall address the following:

2010 (i) Surface water and sediments. Investigations of sediment, surface water

2011 hydrodynamics, and sediment transport mechanisms to characterize significant hydrologic

2012 features such as:

2013 (A) Site surface water drainage patterns, quantities and flow rates((-);

2014 (B) Areas of sediment erosion and deposition including estimates of sedimentation

2015 rates(~~(, and actual or potential)~~);

2016 (C) Contaminant migration routes to and from the site and within the site(~~(Sufficient~~

2017 ~~surface water and sediment sampling shall be performed to adequately characterize the)~~);

2018 (D) Areal and vertical distribution and concentrations of contaminants in sediment.

2019 (E) Recontamination potential of sediments which are likely to influence the type and
2020 rate of contaminant migration, or are likely to affect the ability to implement alternative cleanup
2021 actions ~~((shall be characterized;))~~.

2022 (ii) Geology and groundwater system characteristics. Investigations of site geology and
2023 hydrogeology to ~~((adequately))~~ characterize the physical properties and distribution of sediment
2024 types, and the characteristics of groundwater flow rate, groundwater gradient, groundwater
2025 discharge areas, and groundwater quality data which may affect site cleanup action alternatives
2026 evaluations;

2027 (iii) Climate. Information regarding local and regional climatological characteristics
2028 which are likely to affect surface water hydrodynamics, groundwater flow characteristics, and
2029 migration of sediment contaminants such as: Seasonal patterns of rainfall; the magnitude and
2030 frequency of significant storm events; and prevailing wind direction and velocity;

2031 (iv) Land use. Information characterizing human populations exposed or potentially
2032 exposed to sediment contaminants released at or from the site and present and proposed uses and
2033 zoning for shoreline areas contiguous with the site; and

2034 (v) Natural resources and ~~((ecology))~~ habitat. Information to determine the impact or
2035 potential impact of sediment contaminants from the site on natural resources and ~~((ecology))~~
2036 sensitive habitat of the area such as ~~((Sensitive environment, local and regional habitat,))~~
2037 spawning areas, nursery grounds, shellfish or eelgrass beds and other plant and animal species ~~((,~~
2038 ~~and other environmental receptors))~~.

2039 (d) ~~((Sediment))~~ Current and potential contaminant sources. A description of the
2040 location, quantity, areal and vertical extent, concentration and sources of active and inactive
2041 waste disposal and other sediment contaminant discharge sources ~~((which affect or potentially~~
2042 ~~affect the site))~~. Where determined relevant by the department, the following information shall
2043 be obtained by the department from the responsible discharger:

2044 (i) The physical and chemical characteristics, and the biological effects of site sediment
2045 contaminant sources;

2046 (ii) The status of source control actions for permitted and unpermitted ~~((site sediment))~~
2047 contaminant sources; and

2048 (iii) A recommended compliance time frame for ~~((known))~~ permitted ~~((and unpermitted~~
2049 ~~site sediment))~~ contaminant sources which affect or potentially affect implementation of the
2050 timing and scope of the site cleanup action alternatives.

2051 (e) ~~((Human health risk assessment. The current and potential threats to human health~~
2052 ~~that may be posed by sediment site contamination shall be evaluated using a risk assessment~~
2053 ~~procedure approved by the department.~~

2054 ~~((f))~~ Any other information required by the department.

2055 (7) Feasibility study report. The feasibility study report shall include the following:

2056 (a) If the feasibility study is not combined with the remedial investigation in one report, a
2057 summary of the remedial investigation results including:

2058 (i) Conceptual site model to provide the basis from which cleanup action alternatives are
2059 developed and evaluated;

- 2060 (ii) The proposed biologically active zone;
- 2061 (iii) For each contaminant at the site, the proposed sediment cleanup standards; and
- 2062 (iv) Maps, cross-sections, and calculations illustrating the location, estimated amount and
2063 concentration distribution of hazardous substances above proposed sediment cleanup standards
2064 and the proposed sediment cleanup objective and cleanup screening level;
- 2065 (b) Results of any additional investigation conducted after completion of the remedial
2066 investigation report;
- 2067 (c) Cleanup action alternatives. Each ((cleanup)) feasibility study ((plan)) shall include
2068 an evaluation of alternative cleanup actions that protect human health and the environment by
2069 eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and
2070 migration route. The number and types of alternatives to be evaluated shall take into account the
2071 characteristics and complexity of the site(((-
- 2072 ~~(i) The proposed site cleanup alternatives may include establishment of site units, as~~
2073 ~~defined in WAC 173-204-200(24), with individual cleanup standards within the range required~~
2074 ~~by WAC 173-204-570, based on site physical characteristics and complexity, and cleanup~~
2075 ~~standard alternatives established on consideration of cost, technical feasibility, and net~~
2076 ~~environmental impact.~~
- 2077 ~~((ii) The proposed site cleanup alternatives may include establishment))~~ and be evaluated
2078 using the requirements in WAC 173-204-570;
- 2079 (d) Identification and evaluation of a reasonable number and type of alternatives;

2080 (e) Identification of alternatives eliminated that do not meet the requirements in WAC
2081 173-204-570;

2082 (f) Documentation of the alternatives evaluation process. For each alternative evaluated
2083 include the following:

2084 (i) The location and estimated amount of each contaminant to be removed or treated by
2085 the alternative and the estimated time frame in which removal or treatment will occur; and

2086 (ii) The location, estimated amount, and projected concentration distribution of each
2087 contaminant remaining on-site above proposed sediment cleanup levels after implementation of
2088 the alternative;

2089 (g) The preferred remedy and the basis for selection;

2090 (h) Identification of proposed sediment cleanup units within the site, if applicable;

2091 (i) Applicable local, state and federal laws specific to the proposed preferred remedy,
2092 including a description of permit/approval conditions identified in consultation with the
2093 permitting agencies;

2094 (j) Identification of ((a)) any proposed sediment recovery zone ((as authorized)) and
2095 justification for this zone under WAC 173-204-590((, Sediment recovery zones)). Establishment
2096 or expansion of a sediment recovery zone shall not be used as a substitute for active cleanup
2097 actions, when such actions are practicable and meet the ((standards)) requirements of WAC
2098 ((173-204-580)) 173-204-570. ((The cleanup study plan shall include the following information
2099 for evaluation of sediment recovery zone alternatives:

2100 ~~(A) The time period during which a sediment recovery zone is projected to be necessary~~
2101 ~~based on source loading and net environmental recovery processes determined by application of~~
2102 ~~the department's sediment recovery zone computer models "CORMIX," "PLUMES," and/or "WASP,"~~
2103 ~~or an alternate sediment recovery zone model(s) approved by the department under WAC 173-~~
2104 ~~204-130(4) as limited by the standards of this section and the department's best professional~~
2105 ~~judgment;~~

2106 ~~(B) The legal location and landowner(s) of property proposed as a sediment recovery~~
2107 ~~zone;~~

2108 ~~(C) Operational terms and conditions including, but not limited to proposed~~
2109 ~~confirmational monitoring actions for discharge effluent and/or receiving water column and/or~~
2110 ~~sediment chemical monitoring studies and/or bioassays to evaluate ongoing water quality,~~
2111 ~~sediment quality, and biological conditions within and adjacent to the proposed or authorized~~
2112 ~~sediment recovery zone to confirm source loading and recovery rates in the proposed sediment~~
2113 ~~recovery zone.~~

2114 ~~(D) Potential risks posed by the proposed sediment recovery zone to human health and~~
2115 ~~the environment;~~

2116 ~~(E) The technical practicability of elimination or reduction of the size and/or degree of~~
2117 ~~chemical contamination and/or level of biological effects within the proposed sediment recovery~~
2118 ~~zone; and~~

2119 ~~(F) Current and potential use of the sediment recovery zone, surrounding areas, and~~
2120 ~~associated resources that are, or may be, affected by releases from the zone.~~

2121 ~~(G) The need for institutional controls or other site use restrictions to reduce site~~
2122 ~~contamination risks to human health.~~

2123 ~~(iii) A phased approach for evaluation of alternatives may be required for certain sites,~~
2124 ~~including an initial screening of alternatives to reduce the number of potential remedies for the~~
2125 ~~final detailed evaluation. The final evaluation of cleanup action alternatives that pass the initial~~
2126 ~~screening shall consider the following factors:~~

2127 ~~(A) Overall protection of human health and the environment, time required to attain the~~
2128 ~~cleanup standard(s), and on site and offsite environmental impacts and risks to human health~~
2129 ~~resulting from implementing the cleanup alternatives;~~

2130 ~~(B) Attainment of the cleanup standard(s) and compliance with applicable federal, state,~~
2131 ~~and local laws;~~

2132 ~~(C) Short term effectiveness, including protection of human health and the environment~~
2133 ~~during construction and implementation of the alternative; and~~

2134 ~~(D) Long term effectiveness, including degree of certainty that the alternative will be~~
2135 ~~successful, long term reliability, magnitude of residual, biological and human health risk, and~~
2136 ~~effectiveness of controls for ongoing discharges and/or controls required to manage treatment~~
2137 ~~residues or remaining wastes cleanup and/or disposal site risks;~~

2138 ~~(g) Ability to be implemented. The ability to be implemented including the potential for~~
2139 ~~landowner cooperation, consideration of technical feasibility, availability of needed offsite~~
2140 ~~facilities, services and materials, administrative and regulatory requirements, scheduling,~~

2141 ~~monitoring requirements, access for construction, operations and monitoring, and integration~~
2142 ~~with existing facility operations and other current or potential cleanup actions;~~

2143 ~~(h) Cost, including consideration of present and future direct and indirect capital,~~
2144 ~~operation, and maintenance costs and other foreseeable costs;~~

2145 ~~(i) The degree to which community concerns are addressed;~~

2146 ~~(j) The degree to which recycling, reuse, and waste minimization are employed; and))~~

2147 ~~(k) Proposed monitoring plan during and after cleanup consistent with the provisions in~~
2148 ~~WAC 173-204-600;~~

2149 ~~(l) Environmental impact. Sufficient information shall be provided to fulfill the~~
2150 ~~requirements of chapter 43.21C RCW, the State Environmental Policy Act, for the proposed~~
2151 ~~preferred remedy. Discussions of significant short-term and long-term environmental impacts,~~
2152 ~~significant irrevocable commitments of natural resources, significant alternatives including~~
2153 ~~mitigation measures, and significant environmental impacts which cannot be mitigated shall be~~
2154 ~~included.~~

2155 ~~((5) Cleanup study plan—sampling plan and recordkeeping requirements. The cleanup~~
2156 ~~study plan shall address proposed sampling and recordkeeping activities to meet the standards of~~
2157 ~~WAC 173-204-600, Sampling and testing plan standards, and WAC 173-204-610, Records~~
2158 ~~management, and the standards of this section.~~

2159 ~~(6) Cleanup study plan site safety requirements. The cleanup study plan shall address~~
2160 ~~proposed activities to meet the requirements of the Occupational Safety and Health Act of 1970~~
2161 ~~(29 U.S.C. Sec. 651 et seq.) and the Washington Industrial Safety and Health Act (chapter 49.17~~

2162 ~~RCW), and regulations promulgated pursuant thereto. These requirements are subject to~~
2163 ~~enforcement by the designated federal and state agencies. Actions taken by the department~~
2164 ~~under this chapter do not constitute an exercise of statutory authority within the meaning of~~
2165 ~~section (4)(b)(1) of the Occupational Safety and Health Act.~~

2166 ~~(7) Cleanup study report. Each person performing a cleanup action to meet the intent of~~
2167 ~~this chapter shall submit a cleanup study report to the department for review and written~~
2168 ~~approval of a cleanup decision prior to implementation of the cleanup action. The sediment~~
2169 ~~cleanup study report shall include the results of cleanup study site investigations conducted~~
2170 ~~pursuant to subsection (4) of this section, and preferred and alternate cleanup action proposals~~
2171 ~~based on the results of the approved cleanup study plan.~~

2172 ~~(8) Sampling access. In cases where the person(s) responsible for cleanup is not able to~~
2173 ~~secure access to sample sediments on lands subject to a cleanup study plan approved by the~~
2174 ~~department, the department may facilitate negotiations or other proceedings to secure access to~~
2175 ~~the lands. Requests for department facilitation of land access for sampling shall be submitted to~~
2176 ~~the department in writing by the person(s) responsible for the cleanup action study plan.)) (m)~~
2177 Any other information required by the department. [Statutory Authority: RCW 90.48.220. 96-
2178 02-058, § 173-204-560, filed 12/29/95, effective 1/29/96. Statutory Authority: Chapters 43.21C,
2179 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-019 (Order 90-41), § 173-204-560, filed
2180 3/27/91, effective 4/27/91.]

2181 AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

2182

2183 **WAC 173-204-560 Sediment cleanup standards--General requirements.** (1)

2184 **Applicability and purpose.** This section ~~((establishes the))~~ specifies the methods for
2185 establishing sediment cleanup standards ~~((requirements for cleanup actions required))~~ under
2186 ~~((authority of))~~ chapter ~~((90.48 and/or))~~ 70.105D RCW~~((, and/or this chapter, and describes the~~
2187 ~~process to determine site-specific cleanup standards))~~ for sites where there has been a release or
2188 threatened release of contaminants to sediment. The methods specified in this section shall not
2189 be used to establish the sediment quality standards under Part III of this chapter.

2190 (2) **Method for establishing sediment cleanup levels.** The sediment cleanup level is the
2191 concentration or level of biological effects of a contaminant in sediment determined by the
2192 department to be protective of human health and the environment.

2193 (a) The sediment cleanup objective shall be used to establish the sediment cleanup level.

2194 (i) Upward adjustments. The sediment cleanup level may be adjusted upward from the
2195 sediment cleanup objective based on the following site-specific factors:

2196 (A) Whether it is technically possible to achieve the sediment cleanup level at the
2197 applicable point of compliance within the site or sediment cleanup unit; and

2198 (B) Whether meeting the sediment cleanup level will have an adverse impact on the
2199 aquatic environment, taking into account the long-term positive effects on natural resources and
2200 habitat restoration and enhancement and the short-term adverse impacts on natural resources and
2201 habitat caused by cleanup actions.

2202 (ii) Limit on upward adjustments. A sediment cleanup level may not be adjusted upward
2203 above the cleanup screening level.

2204 (b) Establishment of more stringent sediment cleanup levels. The department may
2205 establish sediment cleanup levels more stringent than those established under (a) of this
2206 subsection when, based on a site-specific evaluation, the department determines that such levels
2207 are necessary to protect human health and the environment. The sediment cleanup level may not
2208 be established below the sediment cleanup objective.

2209 **(3) Sediment cleanup objectives.** ~~((The sediment cleanup objective shall be to eliminate~~
2210 ~~adverse effects on biological resources and significant health threats to humans from sediment~~
2211 ~~contamination. The sediment cleanup objective for all cleanup actions shall be the sediment~~
2212 ~~quality standards as defined in WAC 173-204-320 through 173-204-340, as applicable. The~~
2213 ~~sediment cleanup objective identifies sediments that have no acute or chronic adverse effects on~~
2214 ~~biological resources, and which correspond to no significant health risk to humans, as defined in~~
2215 ~~this chapter.~~

2216 ~~(3) Minimum cleanup))~~ The sediment cleanup objective for a contaminant shall be
2217 established as the highest of the following levels:

2218 (a) The lowest of the following risk-based levels:

2219 (i) The concentration of the contaminant based on protection of human health as defined
2220 in WAC 173-204-561(2);

2221 (ii) The concentration or level of biological effects of the contaminant based on benthic
2222 toxicity as defined in WAC 173-204-562 and 173-204-563, as applicable;

2223 (iii) Concentration or level of biological effects of the contaminant not estimated to result
2224 in minor adverse effects to higher trophic level species as defined in WAC 173-204-564;

2225 (iv) Requirements in other applicable, federal, state, and local laws;

2226 (b) Natural background; and

2227 (c) Practical quantitation limit.

2228 **(4) Cleanup screening level.** ~~The ((minimum cleanup level is the maximum allowed~~
2229 ~~chemical concentration and level of biological effects permissible at the cleanup site to be~~
2230 ~~achieved by year ten after completion of the active cleanup action.~~

2231 ~~(a) The minimum cleanup levels criteria of WAC 173-204-520 shall be used in~~
2232 ~~evaluation of cleanup alternatives per the procedures of WAC 173-204-560, and selection of a~~
2233 ~~site cleanup standard(s) per the procedures of this section.~~

2234 ~~(b) The Puget Sound marine sediment minimum cleanup level is established by the~~
2235 ~~following:~~

2236 ~~(i) Sediments with chemical concentrations at or below the chemical criteria of Table III~~
2237 ~~shall be determined to meet the minimum cleanup level, except as provided in (b)(iv) of this~~
2238 ~~subsection; and~~

2239 ~~(ii) Sediments with chemical concentrations that are higher than the chemical criteria of~~
2240 ~~Table III shall be determined to exceed the minimum cleanup level, except as provided in (b)(iii)~~
2241 ~~of this subsection; and~~

2242 ~~(iii) Sediments with biological effects that do not exceed the levels of WAC 173-204-~~
2243 ~~520(3) shall be determined to meet the minimum cleanup level; and~~

2244 ~~(iv) Sediments with biological effects that exceed the levels of WAC 173-204-520(3)~~
2245 ~~shall be determined to exceed the minimum cleanup level; and~~

2246 ~~(v) Sediments which exceed the sediment minimum cleanup level human health criteria~~
2247 ~~or the other toxic, radioactive, biological, or deleterious substances criteria or the~~
2248 ~~nonanthropogenically affected criteria of WAC 173-204-520 as determined by the department,~~
2249 ~~shall be determined to exceed the minimum cleanup level.~~

2250 ~~(4) Sediment cleanup standard. The sediment cleanup standards are established on a site-~~
2251 ~~specific basis within an allowable range of contamination. The lower end of the range is the~~
2252 ~~sediment cleanup objective as defined in subsection (2) of this section. The upper end of the~~
2253 ~~range is the minimum cleanup level as defined in subsection (3) of this section. The site specific~~
2254 ~~cleanup standards shall be as close as practicable to the cleanup objective but in no case shall~~
2255 ~~exceed the minimum cleanup level. For any given cleanup action, either a site specific sediment~~
2256 ~~cleanup standard shall be defined, or multiple site unit sediment cleanup standards shall be~~
2257 ~~defined. In all cases, the cleanup standards shall be defined in consideration of the net~~
2258 ~~environmental effects (including the potential for natural recovery of the sediments over time),~~
2259 ~~cost and engineering feasibility of different cleanup alternatives, as determined through the~~
2260 ~~cleanup study plan and report standards of WAC 173-204-560.~~

2261 ~~(5) All cleanup standards must ensure protection of human health and the environment,~~
2262 ~~and must meet all legally applicable federal, state, and local requirements.)) cleanup screening~~
2263 ~~level for a contaminant shall be established as the highest of the following levels:~~

2264 (a) The lowest of the following risk-based levels:

2265 (i) The concentration of the contaminant based on protection of human health as defined
2266 in WAC 173-204-561(3);

2267 (ii) The concentration or level of biological effects of the contaminant based on benthic
2268 toxicity as defined in WAC 173-204-562 through 173-204-563, as applicable;

2269 (iii) The concentration or level of biological effects of the contaminant that are not
2270 estimated to result in minor adverse effects to higher trophic level species as defined in WAC
2271 173-204-564;

2272 (iv) Requirements in other applicable federal, state and local laws;

2273 (b) Regional background as defined in subsection (5) of this section; and

2274 (c) Practical quantitation limit.

2275 (5) **Regional background.** Regional background is the concentration of a contaminant
2276 within a department-defined geographic area that is primarily attributable to atmospheric
2277 deposition or diffuse nonpoint sources not attributable to any source. Regional background for a
2278 contaminant shall be established by the department in accordance with the requirements of this
2279 subsection.

2280 (a) In an area with no established regional background, a person is required to provide
2281 samples or demonstrate that sufficient data exists. The department will determine if the data is
2282 sufficient to establish a regional background.

2283 (b) Sampling of contaminants within a department-defined geographic area may be
2284 conducted to establish a regional background. Calculation of regional background for a
2285 contaminant must exclude samples from areas with an elevated level of contamination due to the
2286 direct impact of known or suspected contaminant sources, including areas within a sediment
2287 cleanup unit or depositional zone of a discharge.

2288 (c) The department will determine the appropriate statistical analyses, number and type of
2289 samples, and analytical methods to establish a regional background on a case-by-case basis.

2290 (d) If a water body is not beyond the direct influence of a significant contaminant source,
2291 the department may use alternative geographic approaches to determine regional background for
2292 a contaminant. Several factors must be evaluated when determining an alternate geographic
2293 approach including:

2294 (i) Proximity of sampling locations to the site;

2295 (ii) Similar geologic origins as the site sediment;

2296 (iii) Similar fate and transport and biological activities as the site; and

2297 (iv) Chemical similarity with the site.

2298 **(6) Compliance monitoring.**

2299 (a) General. The methods used to determine compliance with sediment cleanup standards
2300 shall be determined by the department on a site-specific basis.

2301 (b) Use of tissue analysis. At the department's discretion, and when determined to
2302 provide appropriate protection for human health or the environment, contaminants in tissue may

2303 be used to identify and screen chemicals of concern in sediment during the remedial
2304 investigation/feasibility study and to evaluate compliance with sediment cleanup standards.

2305 (i) Risk assessment requirements. Assessments of risk to human health or the
2306 environment from tissue chemical concentrations must be consistent with the procedures of
2307 WAC 173-204-560, 173-204-561 and 173-204-564.

2308 (ii) Species and tissue type selection. The methods and procedures used to select the
2309 appropriate species and tissue types shall be determined by the department on a site-specific
2310 basis.

2311 (7) **Data reporting.** Any person(s) who samples sediment and/or tissue to assess
2312 compliance with Part V of this chapter shall comply with the following conditions:

2313 (a) Where analytical results indicate a chemical is not detected in a sample, the data shall
2314 be reported as "non detect" at the method detection limit and the method detection limit reported.

2315 (b) Where analytical results indicate a chemical is detected between the method detection
2316 limit and the practical quantitation limit in a sample, the data shall be reported and qualified as
2317 "estimated."

2318 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
2319 019 (Order 90-41), § 173-204-570, filed 3/27/91, effective 4/27/91.]

2320

2321

2322 NEW SECTION

2323

2324 **WAC 173-204-561 Sediment cleanup levels based on protection of human health.**

2325 (1) **Applicability.** This section defines sediment cleanup objectives and cleanup screening levels
2326 for contaminants based on protection of human health. They are used to:

2327 _____ (a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520;
2328 and

2329 _____ (b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC
2330 173-204-560.

2331 _____ (2) **Sediment cleanup objectives.** Sediment cleanup objectives based on protection of
2332 human health shall be calculated using the following:

2333 _____ (a) Target risk levels. Sediment cleanup objectives based on protection of human health
2334 shall be at least as protective as the following sediment concentrations:

2335 _____ (i) Noncarcinogens. For noncarcinogens, sediment concentrations that are estimated to
2336 result in no acute or chronic toxic effects on human health as determined using a hazard quotient
2337 of one. If there are multiple noncarcinogens and/or exposure pathways at the site and the hazard
2338 index for the site exceeds one, then the sediment cleanup objectives shall be adjusted downward
2339 in accordance with WAC 173-340-708 or other methods approved by the department; and

2340 _____ (ii) Carcinogens. For known or suspected carcinogens, sediment concentrations for
2341 which the upper bound on the estimated lifetime excess cancer risk for individual carcinogens is
2342 less than or equal to one in one million (1×10^{-6}). If there are multiple carcinogens and/or

2343 exposure pathways at the site and the total lifetime excess cancer risk for the site exceeds one in
2344 one hundred thousand (1×10^{-5}), then the sediment cleanup objectives shall be adjusted
2345 downward in accordance with WAC 173-340-708 or other methods approved by the department.

2346 (b) Reasonable maximum exposure. Sediment cleanup objectives and cleanup screening
2347 levels for contaminants based on protection of human health shall be calculated using reasonable
2348 maximum exposure scenarios that reflect the highest exposure that is reasonably expected to
2349 occur under current and potential future site use conditions.

2350 (i) Default scenario. Except as provided under (b)(ii) of this subsection, the reasonable
2351 maximum exposure scenario for a site shall be tribal consumption of fish and shellfish. The
2352 department shall consider the following information on a site-specific basis when selecting or
2353 approving the exposure parameters used to represent the reasonable maximum exposure
2354 scenario:

2355 (A) Historic, current, and potential future tribal use of fish and shellfish from the general
2356 vicinity of the site.

2357 (B) Relevant studies and best available science related to fish consumption rates.

2358 (C) The total fish and shellfish in an individual's diet that is obtained, or has the potential
2359 to be obtained, from the general vicinity of the site. This value depends on the ability of the
2360 aquatic habitat within the general vicinity of the site to support a department approved fish and
2361 shellfish consumption rate under current and future site use conditions.

2362 (D) The size of the site relative to the fish and shellfish home range.

2363 (E) Other information determined by the department to be relevant.

2364 (ii) Site-specific scenario. The department may approve an alternate reasonable
2365 maximum exposure scenario for the site in accordance with WAC 173-340-708 and 173-340-702
2366 (14) through (16).

2367 (c) Toxicity parameters. For toxicological parameters, values established by the United
2368 States Environmental Protection Agency (USEPA) and available through the Integrated Risk
2369 Information System (IRIS) data base shall be used. If the value for a toxicological parameter is
2370 not available through IRIS, other sources shall be used. When evaluating the appropriateness of
2371 using other sources, the department may use the hierarchy in the following document: USEPA,
2372 Office of Solid Waste and Emergency Response, Directive 9285.7-53, "Human Health Toxicity
2373 Values in Superfund Risk Assessments."

2374 **(3) Cleanup screening levels.**

2375 (a) General. Cleanup screening levels based on protection of human health shall be
2376 calculated using the factors in (b) of this subsection and in subsection (2)(b) through (c) of this
2377 section.

2378 (b) Target risk levels. Cleanup screening levels based on protection of human health
2379 shall be at least as protective as the following sediment concentrations:

2380 (i) Noncarcinogens. For noncarcinogens, sediment concentrations that are estimated to
2381 result in no acute or chronic toxic effects on human health as determined using a hazard quotient
2382 of one. If there are multiple noncarcinogens and/or exposure pathways at the site and the hazard
2383 index for the site exceeds one, then the cleanup screening levels shall be adjusted downward in
2384 accordance with WAC 173-340-708 or other methods approved by the department; and

2385 (ii) Carcinogens. For known or suspected carcinogens, sediment concentrations for
2386 which the upper bound on the estimated lifetime excess cancer risk for individual carcinogens is
2387 less than or equal to one in one hundred thousand (1×10^{-5}). If there are multiple carcinogens
2388 and/or exposure pathways at the site and the total lifetime excess cancer risk for the site exceeds
2389 one in one hundred thousand (1×10^{-5}), then the cleanup screening levels shall be adjusted
2390 downward in accordance with WAC 173-340-708 or other methods approved by the department.

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2395 AMENDATORY SECTION

2396 **WAC 173-204-562 ((Cleanup screening levels criteria.)) Sediment cleanup levels**
2397 **based on protection of the benthic community in marine and low salinity sediment. (1)**
2398 **Applicability.**

2399 ~~((a) The marine sediment cleanup screening levels chemical criteria, and the marine~~
2400 ~~sediment biological effects criteria, and the marine sediment other toxic, radioactive, biological,~~
2401 ~~or deleterious substance criteria, and the marine sediment nonanthropogenically affected criteria~~
2402 ~~of this section)) This section defines sediment cleanup objectives and cleanup screening levels~~
2403 ~~for contaminants based on protection of the benthic community in marine and low salinity~~
2404 ~~sediment. They are used to:~~

2405 (a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520;

2406 (b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC
2407 173-204-560.

2408 **(2) Marine sediment - Chemical criteria.** The chemical concentration criteria in Table
2409 IV establish the sediment cleanup objectives and cleanup screening levels chemical criteria for
2410 marine sediment. The criteria of this section shall apply to marine sediments ((within Puget
2411 Sound)) for toxicity to the benthic community.

2412 (a) The sediment cleanup objectives of this section establish a no adverse effects level,
2413 including no acute or chronic adverse effects, to the benthic community. Chemical
2414 concentrations at or below the sediment cleanup objectives correspond to sediment quality that
2415 results in no adverse effects to the benthic community.

(b) The cleanup screening levels of this section establish a minor adverse effects level, including acute or chronic effects, on the benthic community. Chemical concentrations at or below the cleanup screening level but greater than the sediment cleanup objective correspond to sediment quality that results in minor adverse effects to the benthic community. The marine chemical and biological cleanup screening levels establish minor adverse effects as the level above which station clusters of potential concern are defined and may be defined as potential cleanup sites for benthic community toxicity, and at or below which station clusters of low concern are defined, per the procedures identified in WAC 173-204-510((2)) and 173-204-520.

~~((The cleanup screening levels also establish the levels above which station clusters of potential concern are defined as cleanup sites, per the procedures identified in WAC 173-204-530, Hazard assessment. The criteria in Table III and this section also establish minor adverse effects as the Puget Sound marine sediment minimum cleanup level to be used in evaluation of cleanup alternatives per the procedures of WAC 173-204-560, and selection of a site cleanup standard(s) per the procedures of WAC 173-204-570.~~

~~(b) Non-Puget Sound marine sediment cleanup screening levels and minimum cleanup levels criteria. Reserved: The department shall determine on a case by case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.))~~

(c) The cleanup screening level chemical criteria is exceeded when the sediment chemical concentration for an individual chemical is above the cleanup screening level in Table IV.

(d) The sediment cleanup objective chemical criteria is exceeded when the sediment chemical concentration for one or more chemicals is above the sediment cleanup objective in Table IV.

2438 (e) Low salinity sediment cleanup screening levels ~~((and minimum cleanup levels))~~
2439 criteria. Reserved: The department shall determine on a case-by-case basis the criteria,
2440 methods, and procedures necessary to meet the intent of this chapter.

2441 ~~(((d)) Freshwater sediment cleanup screening levels and minimum cleanup levels criteria.~~
2442 ~~Reserved: The department shall determine on a case-by-case basis the criteria, methods, and~~
2443 ~~procedures necessary to meet the intent of this chapter.~~

2444 ~~(2) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels~~
2445 ~~chemical criteria. The chemical concentration criteria in Table III establish the Puget Sound~~
2446 ~~marine sediment cleanup screening levels and minimum cleanup levels chemical criteria.~~

2447 ~~(a))~~ (f) For purposes of this section, where laboratory analysis indicates a chemical is not
2448 detected in a ((sediment)) sample, the method detection limit and the practical quantitation limit
2449 shall be reported and shall be at or below the ((Marine)) sediment ((Quality Standards)) cleanup
2450 objectives chemical criteria ((value set)) in ((WAC 173-204-320(2))) Table IV.

2451 ~~(((b)))~~ (g) Where chemical criteria in ~~((this))~~ Table IV represent the sum of individual
2452 compounds or isomers, the following methods shall be applied:

2453 (i) Where chemical analyses identify an undetected value for every individual
2454 compound/isomer, then the single highest detection limit shall represent the sum of the
2455 respective compounds/isomers; and

2456 (ii) Where chemical analyses detect one or more individual compound/isomers, only the
2457 detected concentrations will be added to represent the group sum.

2458 ~~((e))~~ (h) For some chemical criteria in Table IV, the listed ~~((chemical parameter))~~
2459 criteria represent concentrations in parts per million, "normalized," or expressed, on a total
2460 organic carbon basis. To normalize to total organic carbon, the dry weight concentration for
2461 each parameter is divided by the decimal fraction representing the percent total organic carbon
2462 content (e.g., 0.01 means 1 percent) of the sediment per the equation: ppm OC := (ppb dry
2463 weight) / (percent total organic carbon x 1000).

2464 ~~((d))~~ (i) The LPAH criterion in Table IV represents the sum of the following "low
2465 molecular weight polynuclear aromatic hydrocarbon" compounds: Naphthalene,
2466 Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, and Anthracene. The LPAH criterion
2467 is not the sum of the criteria values for the individual LPAH compounds as listed.

2468 ~~((e))~~ (j) The HPAH criterion in Table IV represents the sum of the following "high
2469 molecular weight polynuclear aromatic hydrocarbon" compounds: Fluoranthene, Pyrene,
2470 Benz(a)anthracene, Chrysene, Total Benzo(a)fluoranthenes, Benzo(a)pyrene, Indeno(1,2,3-
2471 c,d)pyrene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene. The HPAH criterion is not the
2472 sum of the criteria values for the individual HPAH compounds as listed.

2473 ~~((f))~~ (k) The ~~((TOTAL BENZOFLUORANTHENES))~~ total benzo(a)fluoranthenes criterion in
2474 Table IV represents the sum of the concentrations of the "B," "J," and "K" isomers .

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2479 Table ((III)) IV
 2480 ((Puget Sound)) Marine Sediment
 2481 Sediment Cleanup Objectives and
 2482 Cleanup Screening Levels
 2483 ((and
 2484 Minimum Cleanup Levels)) --
 2485 Chemical Criteria

((CHEMICAL	MG/KG DRY WEIGHT
PARAMETER	(PARTS PER MILLION
(PPM) DRY)	
ARSENIC	93
CADMIUM	6.7
CHROMIUM	270
COPPER	390
LEAD	530
MERCURY	0.59
SILVER	6.1
ZINC	960
CHEMICAL	MG/KG ORGANIC
PARAMETER	CARBON (PPM
	CARBON)
LPAH	780
NAPHTHALENE	170
ACENAPHTHYLENE	66
ACENAPHTHENE	57
FLUORENE	79
PHENANTHRENE	480
ANTHRACENE	1200

2-METHYLNAPHTHALENE	64
HPAH	5300
FLUORANTHENE	1200
PYRENE	1400
BENZ(A)ANTHRACENE	270
CHRYSENE	460
TOTAL BENZOFLUORANTHENES	450
BENZO(A)PYRENE	210
INDENO (1,2,3, C,D) PYRENE	88
DIBENZO (A,H) ANTHRACENE	33
BENZO(G,H,I)PERYLENE	78
1,2-DICHLOROBENZENE	2.3
1,4-DICHLOROBENZENE	9
1,2,4-TRICHLOROBENZENE	1.8
HEXACHLOROBENZENE	2.3
DIMETHYL PHTHALATE	53
DIETHYL PHTHALATE	110
DI-N-BUTYL PHTHALATE	1700
BUTYL BENZYL PHTHALATE	64
BIS (2-ETHYLHEXYL) PHTHALATE	78
DI-N-OCTYL PHTHALATE	4500
DIBENZOFURAN	58
HEXACHLOROBUTADIENE	6.2
N-NITROSODIPHENYLAMINE	11
TOTAL PCB'S	65

CHEMICAL PARAMETER	UG/KG DRY WEIGHT (PARTS PER BILLION (PPB) DRY)
PHENOL	1200
2-METHYLPHENOL	63
4-METHYLPHENOL	670
2,4-DIMETHYL PHENOL	29
PENTACHLOROPHENOL	690
BENZYL ALCOHOL	73
BENZOIC ACID	650))

2486

Chemical Parameter	mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)	mg/kg Dry Weight (Parts per Million (ppm) Dry Weight)
	Sediment Cleanup Objective	Cleanup Screening Level
Arsenic	57	93
Cadmium	5.1	6.7
Chromium	260	270
Copper	390	390
Lead	450	530
Mercury	0.41	0.59
Silver	6.1	6.1
Zinc	410	960
Chemical Parameter	mg/kg Organic Carbon (ppm carbon)	mg/kg Organic Carbon (ppm carbon)

	Sediment Cleanup Objective	Cleanup Screening Level
LPAH	370	780
Naphthalene	99	170
Acenaphthylene	66	66
Acenaphthene	16	57
Fluorene	23	79
Phenanthrene	100	480
Anthracene	220	1200
2-Methyl Naphthalene	38	64
HPAH	960	5300
Fluoranthene	160	1200
Pyrene	1000	1400
Benz(a)anthracene	110	270
Chrysene	110	460
Total Benzofluoranthenes	230	450
Benzo(a)pyrene	99	210
Indeno(1,2,3 c,d) Pyrene	34	88
Dibenzo (a,h) Anthracene	12	33
Benzo (g,h,i) Perylene	31	78
1,2 Dichlorobenzene	2.3	2.3
1,4 Dichlorobenzene	3.1	9
1,2,4 Trichlorobenzene	0.81	1.8
Hexachlorobenzene	0.38	2.3

Dimethyl Phthalate	53	53
Diethyl Phthalate	61	110
Di-n-butyl Phthalate	220	1700
Butyl Benzyl Phthalate	4.9	64
Bis (2-ethylhexyl) Phthalate	47	78
Di-n-octyl Phthalate	58	4500
Dibenzofuran	15	58
Hexachlorobutadiene	3.9	6.2
N-Nitrosodiphenylamine	11	11
Total PCBs	12	65
	ug/kg Dry Weight (Parts per Billion (ppb) Dry Weight)	ug/kg Dry Weight (Parts per Billion (ppb) Dry Weight)
Phenol	420	1200
2-Methylphenol	63	63
4-Methylphenol	670	670
2,4 Dimethyl Phenol	29	29
Pentachlorophenol	360	690
Benzyl Alcohol	57	73
Benzoic Acid	650	650

2487

2488 (3) ~~((Puget Sound))~~ Marine sediment ~~((cleanup screening levels and minimum~~
2489 ~~cleanup level))~~ - Biological criteria. The biological effects criteria ~~((of this subsection))~~ in

2490 Table V establish the ~~((Puget Sound))~~ marine sediment cleanup objectives and cleanup screening
2491 ~~((level, and the Puget Sound marine sediment minimum cleanup level criteria.~~

2492 ~~(a) The acute and chronic effects biological tests of WAC 173-204-315(1) shall be used~~
2493 ~~to:~~

2494 ~~(i) Identify the Puget Sound marine sediment cleanup screening level for the purpose of~~
2495 ~~screening sediment station clusters of potential concern using the procedures of WAC 173-204-~~
2496 ~~510(2); and~~

2497 ~~(ii) Identify the Puget Sound marine sediment cleanup screening level for the purpose of~~
2498 ~~identifying station clusters of low concern and/or cleanup sites using the hazard assessment~~
2499 ~~procedures of WAC 173-204-530(4); and/or~~

2500 ~~(iii) Identify the Puget Sound marine sediment minimum cleanup level to confirm~~
2501 ~~minimum cleanup level determinations using the procedures of WAC 173-204-570(3).~~

2502 ~~(b) When using biological testing to determine if station clusters exceed the cleanup~~
2503 ~~screening level or to identify the minimum cleanup level for a contaminated site, test results from~~
2504 ~~at least two acute effects tests and one chronic effects test shall be evaluated.~~

2505 ~~(c) The biological tests shall not be considered valid unless test results for the appropriate~~
2506 ~~control and reference sediment samples meet the performance standards described in WAC 173-~~
2507 ~~204-315(2).~~

2508 ~~(d))~~ levels. The criteria of this section shall apply to marine sediments for toxicity to the
2509 benthic invertebrate community.

2510 (a) The sediment cleanup objective biological criteria for a sampling station is exceeded
2511 when one of the biological test results is above the sediment cleanup objective as described in
2512 Table V.

2513 (b) The cleanup screening level ((and minimum cleanup level)) biological criteria for a
2514 sampling station is exceeded when:

2515 (i) Any two of the biological test((s)) results for a sampling station exceed the ((criteria of
2516 WAC 173-204-320(3); or one of)) sediment cleanup objective in Table V; or

2517 (ii) One of the biological test results for a sampling station exceeds the cleanup screening
2518 level in Table V and the following ((test determinations is made)):

2519 ((+)) (A) Amphipod: The test sediment has a higher (statistically significant, t test,
2520 p □0.05) mean
2521 greater than a value represented by the reference sediment mean mortality plus thirty percent.

2522 ((+)) (B) Larval: The test sediment has a mean survivorship of normal larvae that is
2523 less (statistically significant, t test, ((p — □0.05 □0.01) than the mean normal survivorship in the
2524 reference sediment and the test sediment mean normal survivorship is less than seventy percent
2525 of the mean normal survivorship in the reference sediment (i.e., the test sediment has a mean
2526 combined abnormality and mortality that is greater than thirty percent relative to time-final in the
2527 reference sediment).

2528 ((+)) (C) Benthic abundance: The test sediment has less than fifty percent of the
2529 reference sediment mean abundance of any two of the following major taxa: Class Crustacea,

2530 Phylum Mollusca or Class Polychaeta and the test sample abundances are statistically different (t
2531 test, $p \leq 0.05$) from the reference abundances.

2532 ~~((iv))~~ (D) Juvenile polychaete: The test sediment has a mean individual growth rate of
2533 less than fifty percent of the reference sediment mean individual growth rate and the test
2534 sediment mean individual growth rate is statistically different (t test, $p \leq 0.05$) from t
2535 sediment mean individual growth rate.

2536 ~~((4) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels
2537 human health criteria. Reserved: The department may determine on a case by case basis the
2538 criteria, methods, and procedures necessary to meet the intent of this chapter.~~

2539 ~~((5) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels))~~
2540 (c) The acute and chronic effects biological tests of Table VI shall be used to:

2541 (i) Confirm designation of marine sediments for benthic toxicity. The department may
2542 require biological testing to confirm the designation of marine sediment which either passes or
2543 fails the chemical criteria established in subsection (2) of this section. If required, the sediment
2544 shall be tested using the procedures in (d) of this subsection.

2545 (ii) Establish the marine sediment cleanup objective and cleanup screening level for
2546 identifying sediment station clusters of potential concern for benthic toxicity using the
2547 procedures of WAC 173-204-510(2); and

2548 (iii) Establish the marine sediment cleanup objective or cleanup screening level for
2549 identifying station clusters of low concern using the procedures of WAC 173-204-510(2).

2550 (d) To designate sediment quality using biological criteria, a minimum of the following
2551 shall be included in the suite of biological tests for each sediment sample as described in Table
2552 VI:

2553 (A) Two acute effects tests; and

2554 (B) One chronic test.

2555 (e) The appropriate control and reference sediment samples shall meet the performance
2556 standards described in Table VI. Selection and use of reference sediment must be approved by
2557 the department and shall meet the performance standards of Table VI. The department may
2558 approve a different performance standard based on latest scientific knowledge.

2559 (f) Use of alternate biological tests may be required by the department and shall be
2560 subject to the review and approval of the department under WAC 173-204-130(4).

2561 (g) Any person who designates test sediments using the procedures of this section shall
2562 meet the sampling and testing plan requirements of WAC 173-204-600 and records management
2563 requirements of WAC 173-204-610. Test sediments designated using the procedures of this
2564 section shall be sampled and analyzed using methods approved by the department, and shall use
2565 an appropriate quality assurance/quality control program, as determined by the department.

2566 **(4) Marine sediment - Other toxic, radioactive, biological, or deleterious substances**
2567 **criteria.** Other toxic, radioactive, biological, or deleterious substances in, or on, sediments shall
2568 be at or below levels which cause minor adverse effects in marine biological resources(~~(, or~~
2569 ~~which correspond to a significant health risk to humans, as determined by the department))~~). The

department shall determine on a case-by-case basis the criteria, methods, and procedures necessary to meet the intent of this chapter.

~~((6) Puget Sound marine sediment cleanup screening levels and minimum cleanup levels nonanthropogenically affected sediment criteria. Whenever the nonanthropogenically affected sediment quality is of a lower quality (i.e., higher chemical concentrations, higher levels of adverse biological response, or posing a higher threat to human health) than the applicable cleanup screening levels or minimum cleanup levels criteria established under this section, the existing sediment chemical and biological quality shall be identified on an area wide basis as determined by the department, and used in place of the standards of WAC 173-204-520.))~~

Table V: Marine sediment cleanup objectives, cleanup screening levels, and performance standards for each biological test. C .= Control; R .= Reference; T .= Test; F .= Final; M .= Mortality; N .= Normal Survivorship expressed as actual counts; I .= Initial count; MIG .= Mean Individual Growth Rate expressed in mg/ind/day AFDW.*; ML .= Mean Light output; BLD .= Blank Corrected Light Decrease; SD .= Significantly Different; an exceedance of the criteria requires a statistical significance at $p = 0.05$ for Amphipod, Juvenile Polychaete, Microtox tests; an exceedance of the criteria requires a statistical significance at $p = 0.10$ for the Larval test.

Biological Test/Endpoint	Performance Control	Standard Reference	Sediment Cleanup Objective for each biological test	Cleanup Screening Level for each biological test
Amphipod				
10-day Mortality	$M_C < 10\%$	$M_R < 25\%$	$M_T > 25\%$ Absolute and M_T vs. M_R SD ($p = 0.05$)	$M_T - M_R > 30\%$ and M_T vs. M_R SD ($p = 0.05$)
Larval				
Bivalve or Echinoderm Abnormality/Mortality	$N_C / I > 0.70$		$N_T / N_R < 0.85$ and N_T vs. N_R SD ($p = 0.10$)	$N_T / N_R > 0.70$ and N_T vs. N_R SD ($p = 0.10$)
Juvenile Polychaete				
<i>Neanthes</i> 28-day Growth	$M_C < 10\%$ and $MIG_C > 0.72$ mg/individual/day (or case-by-case)	$MIG_R / MIG_C > 0.80$	$MIG_T / MIG_R < 0.70$ and MIG_T vs. MIG_R SD ($p = 0.05$)	$MIG_T / MIG_R < 0.50$ and MIG_T vs. MIG_R SD ($p = 0.05$)
Microtox				
Microtox Decreased Luminescence	case-by-case	case-by-case	$ML_T / ML_R < 0.80$ and ML_T vs. ML_R SD ($p = 0.05$)	

Table VI: Types of marine sediment biological tests, species, and applicable endpoints.

Species/Class, biological test, and endpoint	Acute effects biological test	Chronic effects biological test
Amphipod: <i>Rhepoxynius abronius</i> , <i>Ampelisca abdita</i> , <i>Eohaustorius estuarius</i>		
10-day Mortality	X	
Larval: <i>Crassostrea gigas</i> (Pacific oyster), <i>Mytilus (edulis) galloprovincialis</i> (Blue mussel), <i>Strongylocentrotus purpuratus</i> (Purple sea urchin), <i>Dendraster excentricus</i> (Sand dollar)		
Mortality/Abnormality	X	
Juvenile Polychaete:		
<i>Neanthes arenaceodentata</i>		
28-day Growth		X
Microtox: <i>Vibrio fischeri</i>		
15-minute exposure; Decreased luminescence		X
Benthic Infauna: Class Crustacea, Polychaeta, Phylum Mollusca		X

2607 NEW SECTION

2608

2609 **WAC 173-204-563 Sediment cleanup levels based on protection of the benthic**
2610 **community in freshwater sediment. (1) Applicability.** This section defines sediment cleanup
2611 objectives and cleanup screening levels for contaminants based on protection of the benthic
2612 community in freshwater sediment. They are used to:

2613 (a) Identify and assess the hazard of sites under WAC 173-204-510 and 173-204-520;
2614 and

2615 (b) Establish sediment cleanup levels for sites and sediment cleanup units under WAC
2616 173-204-560.

2617 (2) Freshwater sediment - Chemical criteria. The chemical concentration criteria in
2618 Table VII establish the sediment cleanup objectives and cleanup screening levels chemical
2619 criteria for freshwater sediment. The criteria of this section shall apply to freshwater sediments
2620 for toxicity to the benthic community.

2621 (a) The sediment cleanup objectives of this section establish a no adverse effects level,
2622 including no acute or chronic adverse effects, on the benthic community. Chemical
2623 concentrations at or below the sediment cleanup objectives correspond to sediment quality that
2624 results in no adverse effects to the benthic community.

2625 (b) The cleanup screening levels of this section establish a minor adverse effects level,
2626 including acute or chronic effects, on the benthic community. Chemical concentrations at or
2627 below the cleanup screening level but greater than the sediment cleanup objective correspond to

2628 sediment quality that results in minor adverse effects to the benthic community. The freshwater
2629 chemical and biological cleanup screening levels establish minor adverse effects as the level
2630 above which station clusters of potential concern are defined and may be defined as potential
2631 cleanup sites for benthic community toxicity and at or below which station clusters of low
2632 concern are defined, per the procedures identified in WAC 173-204-510.

2633 (c) The cleanup screening level chemical criteria is exceeded when the sediment chemical
2634 concentration for a single chemical is above the cleanup screening level in Table VII.

2635 (d) The sediment cleanup objective chemical criteria is exceeded when the sediment
2636 chemical concentration for a single chemical is above the sediment cleanup objective in Table
2637 VII.

2638 (e) For purposes of this section, where laboratory analysis indicates a chemical is not
2639 detected in a sediment sample, the detection limit and the practical quantitation limit shall be
2640 reported and shall be at or below the freshwater sediment cleanup objectives chemical criteria
2641 value in Table VII.

2642 (f) Where chemical criteria in Table VII represent the sum of individual compounds or
2643 isomers, the following methods shall be applied:

2644 (i) Where chemical analyses identify an undetected value for every individual
2645 compound/isomer, then the single highest detection limit shall represent the sum of the
2646 respective compounds/isomers; and

2647 (ii) Where chemical analyses detect one or more individual compound/isomers, only the
2648 detected concentrations will be added to represent the group sum.

2649 _____ (g) The chemical criteria in Table VII represent concentrations in parts per million dry
2650 weight normalized.

2651 _____ (h) The total polycyclic aromatic hydrocarbon (PAH) criterion in Table VII represents the
2652 sum of the following polycyclic aromatic hydrocarbon compounds: 1-methylnaphthalene, 2-
2653 methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benz(a)anthracene,
2654 benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene,
2655 dibenz(ah)anthracene, fluoranthene, fluorene, indeno(123-cd)pyrene, naphthalene, phenanthrene,
2656 pyrene, total benzofluoranthenes (b.+k.+j).

2657 _____ (i) The total dichlorodiphenyldichloroethane (DDD) criterion in Table VII represents the
2658 sum of the following DDD isomers: o,p'-DDD, p,p'-DDD.

2659 _____ (j) The total dichlorodiphenyldichloroethylene (DDE) criterion in Table VII represents
2660 the sum of the following DDE isomers: o,p'-DDE, p,p'-DDE.

2661 _____ (k) The total dichlorodiphenyltrichloroethane (DDT) criterion in Table VII represents
2662 the sum of the following DDT isomers: o,p'-DDT, p,p'-DDT.

2663 _____ (l) The total polycyclic chlorinated biphenyl (PCB) Aroclors criterion in Table VII
2664 represents the sum of the following Aroclors: 1016, 1221, 1242, 1248, 1254, 1260, 1268.

2665 _____ (m) When the listed chemical criteria in Table VII have a ">" (greater than) value for the
2666 cleanup screening level, the minor adverse affects level is unknown but is above the
2667 concentration shown. If test results show concentrations above this cleanup screening level,
2668 bioassays shall be conducted to evaluate potential benthic toxicity.

2669 (n) The department recognizes that, in the following types of freshwater sediment
2670 environments, the chemical criteria in Table VII may not be predictive of benthic toxicity:

2671 (i) Sediment with unique geochemical characteristics such as bogs and alpine wetlands;

2672 (ii) Sediment where chemicals not listed in Table VII are suspected of causing benthic
2673 toxicity;

2674 (iii) Sediment, porewater, or overlying water with unusual pH, total organic carbon,
2675 alkalinity, or other characteristics; and

2676 (iv) Sediment impacted by metals mining, metals milling, or metals smelting.

2677 In these types of freshwater sediment environments, alternative methods for
2678 characterizing benthic toxicity shall be required, unless the department determines the chemical
2679 criteria in Table VII is predictive of benthic toxicity. In order of preference, alternative methods
2680 include:

2681 (A) Using the biological criteria of subsection (3)(a) through (h) of this section;

2682 (B) Establishing site-specific chemical criteria using site chemistry and the biological
2683 criteria of subsection (3)(a) through (h) of this section;

2684 (C) Other biological methods approved by the department; or

2685 (D) Other approaches in accordance with WAC 173-204-130.

2686

2687

Table VII

Freshwater Sediment Cleanup Objectives
and Cleanup Screening Levels Chemical Criteria

Chemical Parameter	Dry Weight Normalized	Dry Weight Normalized
	Sediment Cleanup Objective	Cleanup Screening Level
Conventional chemicals (mg/kg)		
Ammonia	230	300
Total sulfides	39	61
Metals (mg/kg)		
Arsenic	14	120
Cadmium	2.1	5.4
Chromium	72	88
Copper	400	1200
Lead	360	> 1300
Mercury	0.66	0.8
Nickel	26	110
Selenium	11	> 20
Silver	0.57	1.7
Zinc	3200	> 4200
Organic chemicals (µg/kg)		
4-Methylphenol	260	2000
Benzoic acid	2900	3800
Beta-Hexachlorocyclohexane	7.2	11
Bis(2-Ethylhexyl) phthalate	500	22000
Carbazole	900	1100

Dibenzofuran	200	680
Dibutyltin	910	130000
Dieldrin	4.9	9.3
Di-n-butyl phthalate	380	1000
Di-n-octyl phthalate	39	> 1100
Endrin Ketone	8.5	0
Monobutyltin	540	> 4800
Pentachlorophenol	1200	> 1200
Phenol	120	210
Tetrabutyltin	97	> 97
Total PCB Aroclors	110	2500
Total DDDs	310	860
Total DDEs	21	33
Total DDTs	100	8100
Total PAHs	17000	30000
Tributyltin	47	320
Bulk Petroleum Hydrocarbons (mg/kg)		
Total Petroleum Hydrocarbon (TPH)-Diesel	340	510
Total Petroleum Hydrocarbon (TPH)-Residual	3600	4400

2691

2692 **(3) Freshwater sediment - Biological criteria.** The biological effects criteria in Table

2693 VIII establish the sediment cleanup objectives and cleanup screening levels biological criteria for

2694 freshwater sediment. The criteria of this section shall apply to freshwater sediments for toxicity

2695 to the benthic invertebrate community.

2696 (a) The sediment cleanup objective biological criteria for a sampling station is exceeded
2697 when one of the biological test results is above the sediment cleanup objective as described in
2698 Table VIII.

2699 (b) The cleanup screening level biological criteria for a sampling station is exceeded
2700 when:

2701 (i) Any two of the biological test results for a sampling station are above the sediment
2702 cleanup objective in Table VIII; or

2703 (ii) One of the biological test results for a sampling station is above the cleanup screening
2704 level as described in Table VIII.

2705 (c) The acute and chronic effects biological tests of Table IX shall be used to:

2706 (i) Confirm designation of freshwater sediment for benthic toxicity. The department may
2707 require biological testing to confirm the designation of freshwater sediment which either passes
2708 or fails the chemical criteria in subsection (2) of this section. If required, the sediment shall be
2709 tested using the procedures in (d) of this subsection;

2710 (ii) Evaluate the freshwater sediment cleanup objective and cleanup screening level for
2711 identifying sediment station clusters of potential concern for benthic toxicity using the
2712 procedures in WAC 173-204-510(2);

2713 (iii) Establish the freshwater sediment cleanup objective or cleanup screening level for
2714 identifying station clusters of low concern for benthic toxicity using the procedures in WAC 173-
2715 204-510(2).

2716 (d) To designate sediment quality using biological criteria, a minimum of the following
2717 shall be included in the suite of biological tests for each sediment sample as described in Table
2718 IX:

2719 (i) Two different species;

2720 (ii) Three endpoints;

2721 (iii) One chronic test; and

2722 (iv) One sublethal endpoint.

2723 (e) The appropriate control and reference sediment samples shall meet the performance
2724 standards described in Table VIII. Selection and use of reference sediment must be approved by
2725 the department and shall meet the performance standards of Table VIII. The department may
2726 approve a different performance standard based on latest scientific knowledge.

2727 (f) When sediment is collected to conduct the biological tests in Table VIII or other
2728 biological tests approved by the department, the overlying site water shall be collected and
2729 analyzed for pH, alkalinity, hardness, and temperature.

2730 (g) Use of alternate biological tests may be required by the department and shall be
2731 subject to the review and approval of the department using the procedures of WAC 173-204-
2732 130(4). When conditions in subsection (2)(n) of this section apply, and when determined
2733 appropriate by the department, the use of alternate biological tests in addition to the biological
2734 tests in Table IX shall be required and be subject to the review and approval by the department
2735 using the procedures of WAC 173-204-130(4).

2736 (h) Any person who designates test sediments using the procedures of this section shall
2737 meet the sampling and testing plan requirements of WAC 173-204-600 and records management
2738 requirements of WAC 173-204-610. Test sediments designated using the procedures of this
2739 section shall be sampled and analyzed using methods approved by the department, and shall use
2740 an appropriate quality assurance/quality control program, as determined by the department.

2741 (4) **Freshwater sediment - Other toxic, radioactive, biological, or deleterious**
2742 **substances criteria.** Other toxic, radioactive, biological, or deleterious substances in, or on,
2743 sediments shall be at or below levels which cause minor adverse effects to biological resources,
2744 as determined by the department. The department shall determine on a case-by-case basis the
2745 criteria, methods, and procedures necessary to meet this requirement.

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Table VIII. Freshwater sediment cleanup objectives, cleanup screening levels, and performance standards for each biological test. M.= Mortality; C.= Control; R.= Reference; T.= Test; F.= Final; MIG.= Mean Individual Growth at time final; mg.= milligrams. An exceedance of the sediment cleanup objective and cleanup screening level requires statistical significance at p .= 0.05. Reference performance standards are provided for sites where the department has approved a freshwater reference sediment site(s) and reference results will be substituted for control in comparing test sediments to criteria. *The department shall use the most updated American Society for Testing and Materials and EPA protocols and performance standards.

Biological Test/ Endpoint.*	Performance Standard.*		Sediment Cleanup Objective for each biological test	Cleanup Screening Level for each biological test
	Control.*	Reference		
<i>Hyalella azteca</i>				
10-day mortality	$M_C < 20\%$	$M_R < 25\%$	$M_T - M_C > 15\%$	$M_T - M_C > 25\%$
28-day mortality	$M_C < 20\%$	$M_R < 30\%$	$M_T - M_C > 10\%$	$M_T - M_C > 25\%$
28-day growth	$MIG_C > 0.15$ mg/individual	$MIG_R > 0.15$ mg/individual	$MIG_T/MIG_C < 0.75$	$MIG_T/MIG_C < 0.6$
<i>Chironomus dilutus</i>				
10-day mortality	$M_C < 30\%$	$M_R < 30\%$	$M_T - M_C > 20\%$	$M_T - M_C > 30\%$
10-day growth	$MIG_C > 0.48$ mg/individual	$RF/CF > 0.8$	$MIG_T/MIG_C < 0.8$	$MIG_T/MIG_C < 0.7$
20-day mortality	$M_C < 32\%$	$M_R < 35\%$	$M_T - M_C > 15\%$	$M_T - M_C > 25\%$
20-day growth	$MIG_C > 0.60$ mg/individual	$RF/CF > 0.8$	$MIG_T/MIG_C < 0.75$	$MIG_T/MIG_C < 0.6$

2778 **Table IX.** Types of freshwater sediment biological tests, species, and applicable endpoints. The
 2779 department shall use the most current American Society for Testing and Materials and EPA protocols for
 2780 establishing appropriate biological tests.

Species, biological test, and endpoint	Acute effects biological test	Chronic effects biological test	Lethal effects biological test	Sub-lethal effects biological test
Amphipod <i>Hyalella azteca</i>				
10-day Mortality	x		x	
28-day Mortality		x	x	
28-day Growth		x		x
Midge <i>Chironomus dilutus</i>				
10-day Mortality	x		x	
10-day Growth	x			x
20-day Mortality		x	x	
20-day Growth		x		x

2783 NEW SECTION

2784

2785 **WAC 173-204-564 Sediment cleanup levels based on protection of higher trophic**
2786 **level species.** (1) **Applicability.** This section defines sediment cleanup objectives and cleanup
2787 screening levels for contaminants based on protection of species at trophic levels not addressed
2788 in WAC 173-204-562 and 173-204-563 (hereafter called "higher trophic level species"). They
2789 are used to establish sediment cleanup levels for sites and sediment cleanup units under WAC
2790 173-204-560.

2791 (2) **Requirements.** Sediment cleanup objectives and cleanup screening levels based on
2792 protection of higher trophic level species shall not be established at concentrations that do not
2793 have the potential for minor adverse effects. To establish such concentrations, a site-specific
2794 ecological risk assessment meeting the requirement of this subsection must be performed.

2795 (a) Approval by the department. Prior to performing the assessment, the department must
2796 approve the criteria, methods, and procedures to be used in the assessment.

2797 (b) Species evaluated. The assessment must evaluate higher trophic level species that
2798 currently utilize, may potentially inhabit, or have historically inhabited the site.

2799 (c) Factors considered. The assessment must consider factors such as:

2800 (i) For higher trophic level species protected under the Federal Endangered Species Act,
2801 Title 77 RCW, or Title 79 RCW, a minor adverse effect means a significant disruption of normal
2802 behavior patterns such as breeding, feeding, or sheltering. For all other higher trophic level

2803 species, minor adverse effects are effects that impair the higher trophic level species
2804 reproduction, growth or survival.

2805 _____ (ii) The species life history, feeding and reproductive strategy, population numbers,
2806 range, and the potential for recruitment/immigration of individuals to the site.

2807 _____ (iii) The potential for the contaminant to bioaccumulate or biomagnify through the food
2808 chain. A contaminant will be presumed to have this potential if any of the following conditions
2809 are met:

2810 _____ (A) The contaminant is listed as a persistent, bioaccumulative, or toxic (PBT)
2811 contaminant on the department's PBT list in WAC 173-333-310; or

2812 _____ (B) The log of the contaminant's octanol-water partitioning coefficient is greater than 3.5
2813 ($\log K_{ow} > 3.5$).

2814 _____ (iv) Whether contaminants are present at the site that are known or suspected to have
2815 minor adverse effects on higher trophic level species.

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2818 AMENDATORY SECTION (Amending Order 90-41, filed 3/27/91, effective 4/27/91)

2819 **WAC 173-204-570 Selection of cleanup actions ((~~decision~~)).** ~~((1) Each person~~
2820 ~~performing a cleanup action to meet the intent of this chapter shall comply with the standards of~~
2821 ~~WAC 173-204-560(7), Cleanup study report. Except for cleanups conducted under chapter~~
2822 ~~70.105D RCW, the department shall review each cleanup study report and issue a written~~
2823 ~~approval of one or more of the cleanup action alternatives described in the cleanup study report,~~
2824 ~~or issue a written disapproval of all alternatives described in the cleanup study report. The~~
2825 ~~department's approval of one or more cleanup study report cleanup action alternatives shall~~
2826 ~~constitute the cleanup decision and shall be referenced in one or more permit or administrative~~
2827 ~~authorities established under chapter 90.48 or 70.105D RCW, Section 401 of the federal Clean~~
2828 ~~Water Act, chapter 173-225 WAC, establishment of implementation procedures of application~~
2829 ~~for certification, or other administrative authorities available to the department. The department~~
2830 ~~may approve the cleanup alternative recommended in the cleanup study report, may approve a~~
2831 ~~different alternative discussed in the report, or may approve an alternative(s) with appropriate~~
2832 ~~conditions. The department's disapproval of all cleanup study report cleanup action alternatives~~
2833 ~~shall be issued by certified mail, return receipt requested, to the cleanup action proponent(s).~~
2834 ~~The procedures for department review of the cleanup study report and selection of a cleanup~~
2835 ~~action under chapter 70.105D RCW shall be in accordance with the procedures of chapter 173-~~
2836 ~~340 WAC.~~

2837 ~~(2) All cleanup actions conducted under this chapter shall meet the following~~
2838 ~~requirements:~~

2839 ~~(a) Receive department review and written approval of the preferred and/or alternate~~
2840 ~~cleanup actions and necessary sediment recovery zones proposed in the cleanup study report~~
2841 ~~prior to implementing a cleanup action(s);~~

2842 ~~(b) Achieve a degree of cleanup that is protective of human health and the environment;~~

2843 ~~(c) Achieve compliance with applicable state, federal, and local laws;~~

2844 ~~(d) Achieve compliance with site cleanup standards;~~

2845 ~~(e) Achieve compliance with sediment source control requirements pursuant to WAC~~
2846 ~~173-204-400 through 173-204-420, if necessary;~~

2847 ~~(f) Provide for landowner review of the cleanup study plan and report, and consider~~
2848 ~~public concerns raised during review of the draft cleanup report; and~~

2849 ~~(g) Provide adequate monitoring to ensure the effectiveness of the cleanup action.~~

2850 ~~(3) Cleanup time frame.~~

2851 ~~(a) The cleanup action selected shall provide for a reasonable time frame for completion~~
2852 ~~of the cleanup action, based on consideration of the following factors:~~

2853 ~~(i) Potential risks posed by the site to biological resources and human health;~~

2854 ~~(ii) Practicability of achieving the site cleanup standards in less than a ten-year period;~~

2855 ~~(iii) Current use of the site, surrounding areas, and associated resources that are, or may~~
2856 ~~be, affected by the site contamination;~~

2857 ~~(iv) Potential future use of the site, surrounding areas, and associated resources that are,~~
2858 ~~or may be, affected by the site contamination;~~

2859 ~~(v) Likely effectiveness and reliability of institutional controls;~~

2860 ~~(vi) Degree of, and ability to control and monitor, migration of contamination from the~~
2861 ~~site; and~~

2862 ~~(vii) Natural recovery processes which are expected to occur at the site that will reduce~~
2863 ~~concentrations of contaminants.~~

2864 ~~(b) The department may authorize cleanup time frames that exceed the ten-year period~~
2865 ~~used in deriving the site cleanup standards of WAC 173-204-570(4) where cleanup actions are~~
2866 ~~not practicable to accomplish within a ten-year period.~~

2867 ~~(4) In evaluating cleanup action alternatives, the department shall consider:~~

2868 ~~(a) The net environmental effects of the alternatives, including consideration of residual~~
2869 ~~effects, recovery rates, and any adverse effects of cleanup construction or disposal activities;~~

2870 ~~(b) The relative cost effectiveness of the alternatives in achieving the approved site~~
2871 ~~cleanup standards; and~~

2872 ~~(c) The technical effectiveness and reliability of the alternatives.~~

2873 ~~(5) Public participation. The department shall provide opportunity for public review and~~
2874 ~~comment on all cleanup action study plans, reports, and decisions reviewed and approved by the~~
2875 ~~department, for cleanup actions conducted under this chapter.~~

~~(6) Land access. In cases where the person(s) responsible for cleanup is not able to secure access to lands subject to a cleanup action decision made pursuant to this section, the department may facilitate negotiations or other proceedings to secure access to the lands. Requests for department facilitation of land access shall be submitted to the department in writing by the person(s) named in the cleanup action approval.))~~ (1) **Purpose.** This section establishes the minimum requirements and criteria for selecting sediment cleanup actions under chapter 70.105D RCW. This section applies both to sediment-only cleanup sites and to the sediment portion of any combined upland and sediment cleanup site.

(2) **General requirements.** The department shall review and provide written approval of cleanup actions and sediment recovery zones prior to implementation of a cleanup action.

(3) **Minimum requirements for sediment cleanup actions.** The requirements in this subsection and the requirements for establishing the sediment cleanup standard under WAC 173-204-560 shall be considered concurrently. All sediment cleanup actions conducted under this chapter shall meet the following minimum requirements:

(a) Protect human health and the environment;

(b) Comply with all applicable state, federal, and local laws;

(c) Comply with the sediment cleanup standards specified in WAC 173-204-560 through 173-204-564;

(d) Use permanent solutions to the maximum extent practicable, as defined in subsection (4) of this section;

2896 (e) Provide for a reasonable restoration time frame as defined in subsection (5) of this
2897 section. Preference shall be given to alternatives that restore the site sooner. Unless otherwise
2898 determined by the department, cleanup actions that achieve compliance with the sediment
2899 cleanup standards at a site or sediment cleanup unit within ten years from the start of the cleanup
2900 action shall be presumed to have a reasonable restoration time frame.

2901 (f) Where source control measures are proposed as part of a cleanup action, preference
2902 shall be given to alternatives with source control measures that are more effective in minimizing
2903 the accumulation of contaminants in sediment due to current and future discharges;

2904 (g) If a sediment recovery zone is part of the cleanup action, meet the requirements in
2905 WAC 173-204-590;

2906 (h) Cleanup actions shall not rely primarily on monitored natural recovery or institutional
2907 controls and monitoring where it is technically possible to implement a more permanent cleanup
2908 action. Where institutional controls are used, they must comply with WAC 173-340-440 and
2909 preference shall be given to the types of institutional controls with a demonstrated ability to
2910 control exposures and ensure the integrity of the cleanup action;

2911 (i) Provide an opportunity for review and comment by affected landowners and the
2912 general public, and consider concerns identified in these comments; and

2913 (j) Provide adequate monitoring to ensure the effectiveness of the cleanup action.
2914 Preference will be given to alternatives with a greater ability to monitor the effectiveness of the
2915 cleanup action, institutional controls, and any migration of residual contamination; and

(k) Provide for periodic review to determine the long-term effectiveness and protectiveness of remedies that utilize containment, enhanced natural recovery, monitored natural recovery, institutional controls or a sediment recovery zone. The periodic review shall follow the process and requirements specified in WAC 173-340-420.

(4) Using permanent solutions to the maximum extent practicable. This subsection describes the requirements for determining whether a cleanup action consists of permanent solutions to the maximum extent practicable, as required under subsection (3)(d) of this section. When making this determination, the process and criteria in WAC 173-340-360 shall be used. However, when assessing the relative degree of long-term effectiveness of cleanup action alternatives, the following hierarchy, in descending order, shall be used as a guide in place of the hierarchy in WAC 173-340-360:

(a) Source controls in combination with other cleanup technologies;

(b) Dredging and beneficial reuse of the sediments;

(c) Dredging and treatment to immobilize, destroy, or detoxify contaminants;

(d) In-situ treatment to immobilize, destroy, or detoxify contaminants;

(e) Dredging and disposal in an upland engineered facility that minimizes subsequent releases and exposures to contaminants;

(f) Dredging and disposal in a nearshore, in-water, confined aquatic disposal facility;

(g) Containment of contaminated sediments in-place with an engineered cap;

(h) Dredging and disposal at an open water disposal site approved by the department;

2936 (i) Enhanced natural recovery;

2937 (j) Monitored natural recovery; and

2938 (k) Institutional controls and monitoring.

2939 **(5) Providing a reasonable restoration time frame.** This subsection describes the
2940 requirements and procedures for determining whether a cleanup action provides a reasonable
2941 restoration time frame, as required under subsection (3)(e) of this section.

2942 **(a) Factors.** When determining whether a cleanup action provides a reasonable
2943 restoration time frame, the following factors shall be considered:

2944 (i) Potential risks posed by the site or sediment cleanup unit to biological resources and
2945 human health;

2946 (ii) Practicability of achieving the site or sediment cleanup unit-specific cleanup
2947 standards in less than a ten-year period;

2948 (iii) Current use of the site or sediment cleanup unit, surrounding areas, and associated
2949 resources that are, or may be, affected by residual contamination;

2950 (iv) Potential future use of the site or sediment cleanup unit, surrounding areas, and
2951 associated resources that are, or may be, affected by residual contamination;

2952 (v) Likely effectiveness and reliability of institutional controls;

2953 (vi) Degree of, and ability to control and monitor migration of residual contamination;

2954 and

2955 (vii) The degree to which natural recovery processes are expected to reduce
2956 contamination.

2957 **(b) Time frames longer than ten years.** The department must authorize any restoration
2958 time frame longer than ten years after the start of the cleanup action. To be authorized, the
2959 proponent must demonstrate that cleanup actions cannot practicably achieve sediment cleanup
2960 standards at the site or sediment cleanup unit within ten years after the start of the cleanup action.
2961 If the department approves a longer restoration time frame, the department must also establish a
2962 sediment recovery zone in accordance with WAC 173-204-590.

2963

2964 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
2965 019 (Order 90-41), § 173-204-580, filed 3/27/91, effective 4/27/91.]

2966 NEW SECTION

2967

2968 **WAC 173-204-580 Cleanup action decisions. (1) Purpose.** The department shall use
2969 the remedial investigation/feasibility study report and other appropriate information to establish
2970 sediment cleanup standards and select cleanup actions for a site or sediment cleanup unit. These
2971 decisions must be consistent with this chapter and the underlying administrative authority.

2972 (2) State cleanup sites. For sites or sediment cleanup units being cleaned up under the
2973 authority of chapter 70.105D RCW, the department shall prepare a cleanup action plan
2974 documenting its cleanup decisions. The cleanup action plan shall be prepared consistent with the
2975 pertinent requirements and procedures specified in WAC 173-340-380. The decisions in the
2976 cleanup action plan shall be incorporated into any enforcement order, agreed order, consent
2977 decree, or other binding legal document issued under chapter 70.105D RCW. The public review
2978 process for the department's decisions shall comply with the requirements and procedures in
2979 chapter 173-340 WAC.

2980 (3) Federal cleanup sites. For sites or sediment cleanup units being cleaned up under
2981 the authority of the federal Comprehensive Environmental Response, Compensation and
2982 Liability Act; (42 U.S.C. §§ 9601 et seq.), a record of decision, administrative order, consent
2983 decree, or other binding legal document issued under the federal cleanup law may be used by the
2984 department to meet the requirements of this section provided:

2985 (a) The cleanup action is consistent with the requirements in this chapter;

2986 (b) The state has concurred with the cleanup action; and

2987 (c) An opportunity was provided for the public to comment on the cleanup action.

2988 (4) **Other authorities.** For sites or sediment cleanup units being cleaned up under other
2989 authorities, the department's cleanup decisions shall be incorporated into the permit,
2990 administrative order, or other appropriate binding legal document. The public review process,
2991 and documentation for the department's decisions, shall be consistent with the requirements and
2992 procedures for the underlying administrative authority.

2993 (5) **Public involvement.** The department shall provide public notice and an opportunity
2994 for review and comment on its sediment cleanup decisions under this chapter.

2995 (a) Where the underlying administrative authority used to implement the cleanup action
2996 provides an adequate public notice and comment opportunity prior to implementation of the
2997 cleanup action, separate public notice and comment is not required under this chapter.

2998 (b) If the underlying administrative authority does not provide adequate public notice and
2999 comment opportunity, then the department shall provide for this prior to implementation of the
3000 cleanup action.

3001 (c) Where more than one public notice and comment period is needed to fulfill the
3002 requirements of this chapter and those in other laws, the department may combine public notice
3003 and comment periods, hearings, and other public involvement opportunities to streamline the
3004 public review process.

3005 AMENDATORY SECTION (Amending WSR 96-02-058, filed 12/29/95, effective 1/29/96)

3006

3007 **WAC 173-204-590 Sediment recovery zones.** (1) **Applicability.** ~~((The purpose of this~~
3008 ~~section is to set forth the requirements for establishment and monitoring of sediment recovery~~
3009 ~~zones to meet the intent of sediment quality dilution zones authorized pursuant to RCW~~
3010 ~~90.48.520.~~

3011 ~~The standards of this section are applicable to cleanup action decisions made pursuant to~~
3012 ~~WAC 173-204-580 where selected actions leave in place marine, low salinity, or freshwater~~
3013 ~~sediments that exceed the applicable sediment quality standards of WAC 173-204-320 through~~
3014 ~~173-204-340.)) This section specifies requirements governing the establishment and monitoring~~
3015 ~~of sediment recovery zones. Sediment recovery zones are necessary at sites and sediment~~
3016 ~~cleanup units where the department has determined the selected cleanup actions cannot~~
3017 ~~practicably achieve sediment cleanup standards within a ten year restoration time frame from the~~
3018 ~~start of the cleanup action.~~

3019 (2) **General requirements.** Authorization of a sediment recovery zone by the
3020 department shall require compliance with the following general requirements:

3021 (a) ~~((The sediment recovery zone shall be determined by application of the department's~~
3022 ~~sediment recovery zone computer models "CORMIX," "PLUMES," and/or "WASP," or an alternate~~
3023 ~~sediment recovery zone model(s) approved by the department under WAC 173-204-130(4) as~~
3024 ~~limited by the standards of this section and the department's best professional judgment.~~

3025 ~~(b))~~ Establishment or expansion of a sediment recovery zone shall not be used as a
3026 substitute for active cleanup actions, when such actions are determined to be practicable under
3027 WAC 173-204-570;

3028 (b) The areal extent of the sediment recovery zone shall not extend beyond the area
3029 within the site or sediment cleanup unit where the department has determined the cleanup action
3030 cannot practicably achieve sediment cleanup standards within a ten year restoration time frame
3031 from the start of the cleanup action;

3032 (c) The chemical concentrations within the sediment recovery zone shall be as close to
3033 the sediment cleanup standard as practicable;

3034 (d) Best management practices shall be used for activities resulting in diffuse, nonpoint
3035 discharges within the sediment recovery zone;

3036 (e) The department shall ((provide specific authorization for a)) describe the sediment
3037 recovery zone ((within the written approval of the cleanup study report and cleanup decision
3038 required)) in the cleanup action plan, or other decision document prepared under WAC 173-204-
3039 580.

3040 ~~((c) The time period during which a sediment recovery zone is authorized by the~~
3041 ~~department shall be so stated in the department's written approval of the cleanup study report and~~
3042 ~~cleanup decision.~~

3043 ~~(d) The department's written sediment recovery zone))~~ Specific authorization for the
3044 sediment recovery zone must be provided in an enforceable document (permits, orders,
3045 settlements, etc.); and

3046 (f) Any authorization for a sediment recovery zone shall identify the legal location and
3047 landowners of property proposed as a sediment recovery zone.

3048 ~~(((e) Operational terms and conditions for the authorized sediment recovery zone~~
3049 ~~pursuant to subsection (5) of this section shall be maintained at all times.~~

3050 ~~(f) Where cleanup is not practicable pursuant to the analysis under WAC 173-204-~~
3051 ~~570(4),))~~ **(3) Criteria.** When considering whether to authorize a sediment recovery zone, the
3052 department shall consider the criteria in subsection (2) of this section and the following factors:

3053 (a) Limitation of any modeling used to project the areal extent and time period needed for
3054 the sediment recovery zone;

3055 (b) Potential risks posed by the sediment recovery zone to human health and the
3056 environment;

3057 (c) The technical practicability of elimination or reduction of the size and/or degree of
3058 chemical contamination and/or level of biological effects within the proposed sediment recovery
3059 zone;

3060 (d) Current and potential use of the sediment recovery zone, surrounding areas, and
3061 associate resources that are, or may be, affected by releases from the zone; and

3062 (e) The need for institutional controls or other site use restrictions to reduce site
3063 contamination risks to human health.

3064 **(4) Duration.** Sediment recovery zones may be authorized for ((periods in excess)) an
3065 initial duration of up to ten years and subsequently reviewed and extended in increments not to
3066 exceed ten years.

3067 ~~((3))~~ (a) The areal extent and time period during which a sediment recovery zone is
3068 projected to be necessary will be based on the source loading rate and the recovery rate. The
3069 source loading rate and recovery rate shall be determined by application of the department's
3070 models "CORMIX," "PLUMES," and/or "WASP," or an alternate method approved by the department
3071 under WAC 173-204-130(4), as limited by the requirements of this section and the department's
3072 best professional judgment.

3073 (b) The time period during which a sediment recovery zone is authorized by the
3074 department shall be stated in the cleanup action plan, or other decision document prepared under
3075 WAC 173-204-580, and implementing documents.

3076 **(5) Operational terms and conditions.** Operational terms and conditions for the
3077 authorized sediment recovery zone shall be maintained at all times. These terms and conditions
3078 may include:

3079 (a) Chemical, bioassay, or tissue monitoring of discharges, receiving water column,
3080 organisms, and sediment;

3081 (b) Confirmation of sediment source(s) loading rates, chemical quality and biological
3082 toxicity;

3083 (c) Monitoring contaminant bioaccumulation; and

3084 (d) Ongoing evaluation of the water quality, sediment quality, biological conditions, and
3085 human health impacts within and adjacent to the proposed or authorized sediment recovery zone.

3086 **(6) Trespass not authorized.** A sediment recovery zone authorization issued by the
3087 department under the authority of chapter ~~((90.48-06))~~ 70.105D RCW, or other administrative

means available to the department, does not constitute authorization to trespass on lands not owned by the applicant. These requirements do not address, and in no way alter, the legal rights, responsibilities, or liabilities of the permittee or landowner of the sediment recovery zone for any applicable requirements of proprietary, real estate, tort, and/or other laws not directly expressed as a requirement of this chapter.

~~((4))~~ **(7) Public involvement.** Prior to authorization, the department shall make a reasonable effort to identify and notify all landowners affected by the proposed sediment recovery zone. The department shall issue a sediment recovery zone notification letter to any person it believes to be a potentially affected landowner, the Washington state department of natural resources, the U.S. Army Corps of Engineers, affected port districts, local governments with land use planning authority for the area, and other parties determined appropriate by the department. The notification letter shall be sent by certified mail, return receipt requested, or by personal service. The notification letter shall provide:

(a) The name of the person the department believes to be the affected landowner; ~~((and))~~

(b) The names of other affected landowners to whom the department has sent a proposed sediment recovery zone notification letter; ~~((and))~~

(c) The name of the sediment recovery zone applicant; ~~((and))~~

(d) A general description of the proposed sediment recovery zone, including the chemical(s) of concern by name and concentration, and the area of affected sediment; ~~((and))~~

(e) The determination of the department concerning whether the proposed sediment recovery zone application meets the ~~((standards))~~ requirements of this section; ~~((and))~~

3109 (f) The intention of the department whether to authorize the proposed sediment recovery
3110 zone; and

3111 (g) ~~((Notification that the affected landowner may))~~ Invite comments on the proposed
3112 sediment recovery zone. Any landowner comments shall be submitted in writing to the
3113 department within thirty days from the date of receipt of the notification letter, unless the
3114 department provides an extension.

3115 ~~((5) As determined necessary by the department, operational terms and conditions for
3116 the sediment recovery zone may include completion and submittal to the department of discharge
3117 effluent and/or receiving water column and/or sediment chemical monitoring studies and/or
3118 bioassays to evaluate ongoing water quality, sediment quality, and biological conditions within
3119 and adjacent to the proposed or authorized sediment recovery zone.~~

3120 ~~((6))~~ **(8) Enforcement.** The department shall review all data or studies conducted ~~((in
3121 accordance with))~~ under a sediment recovery zone authorization to ensure compliance with the
3122 terms and conditions of the authorization and the ~~((standards))~~ requirements of this section.
3123 Whenever, in the opinion of the department, the operational terms and conditions of a sediment
3124 recovery zone or the ~~((standards))~~ requirements of this section are violated or there is a potential
3125 to violate the sediment recovery zone authorization or the ~~((standards))~~ requirements of this
3126 section, or new information or a reexamination of existing information indicates the sediment
3127 recovery zone is no longer appropriate, the department may at its discretion:

3128 (a) Require additional chemical or biological monitoring as necessary;

3129 (b) Revise the sediment recovery zone authorization as necessary to meet the
3130 ~~((standards))~~ requirements of this section;

3131 (c) Require active contaminated sediment maintenance actions, including additional
3132 cleanup in accordance with the standards of WAC 173-204-500 through 173-204-580; and/or

3133 (d) Withdraw the department's authorization of the sediment recovery zone.

3134 [Statutory Authority: RCW 90.48.220. 96-02-058, § 173-204-590, filed 12/29/95, effective
3135 1/29/96. Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW.
3136 91-08-019 (Order 90-41), § 173-204-590, filed 3/27/91, effective 4/27/91.]

PART VI

SAMPLING AND TESTING PLANS/RECORDKEEPING

WAC 173-204-600 Sampling and testing plan standards.

(1) Applicability. These standards apply to:

(a) Any person who samples sediments to determine compliance with this chapter;

(b) Any person who makes application to the department for authorization of a sediment impact zone under the standards of WAC 173-204-400 through 173-204-420; and

(c) Any person who samples sediments consistent with cleanup action plans approved and cleanup actions conducted under this chapter.

(2) All applicable persons shall at a minimum, develop, keep, and abide by a sediment sampling and testing plan. The sampling and testing plan shall be available for inspection at the request of the department. Sediment sampling and testing plans shall identify sampling dates, sample types, sample depths, sample composites, sample locations, sample positioning methods, sampling personnel, sampling equipment and methods, a description of methods of chemical analysis and biological testing, and quality assurance/quality control procedures.

(3) Sediment sampling locations and procedures and testing protocols and interpretations shall be those included in the Puget Sound protocols as amended and/or other methods approved by the department.

3156 (4) The department reserves the right to revise these sampling and testing protocols
3157 when:

3158 (a) The Puget Sound protocols are modified or updated per the approval of the
3159 department; or

3160 (b) The department determines the Puget Sound protocols are not applicable to, or
3161 appropriate for analysis of sediment chemical contamination in any given case.

3162

3163 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
3164 019 (Order 90-41), § 173-204-600, filed 3/27/91, effective 4/27/91.]

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3166 **WAC 173-204-610 Records management.** (1) Applicability. These standards apply to:

3167 (a) Any person who samples sediments to determine compliance with this chapter;

3168 (b) Any person who makes application to the department for authorization of a sediment
3169 impact zone under the standards of WAC 173-204-400 through 173-204-420.

3170 (2) All applicable persons shall keep sediment sampling and testing records as follows:

3171 (a) Sediment sampling and testing plans which identify sampling dates, sample types,
3172 sample composites, sample locations, sample depths, sample positioning method, sampling
3173 personnel, sampling equipment and methods, quality assurance/quality control plans, and
3174 sampling procedures.

3175 (b) Sediment removal records which identify removal dates, dredging
3176 contractor/equipment, volume of sediment removed, analytical data generated during the
3177 sediment removal process, and sediment disposal location(s).

3178 (c) Records and results of sediment analyses conducted in accordance with this chapter,
3179 or as required under activities authorized under chapter 173-225 WAC, establishment of
3180 implementation procedures of application for certification.

3181 (d) Records and results of inspections conducted as required under chapter 173-225
3182 WAC, establishment of implementation procedures of application for certification.

3183 (e) Sediment treatment records.

3184 (f) Sediment onsite capping records.

3185 (g) Sediment disposal records which identify sediment disposal location(s), onsite
3186 operating records, sediment volumes, disposal site property owner(s), and the
3187 chemical/biological nature of effluent discharges from the disposal location including the name,
3188 location, and quality of the receiving water.

3189 (3) All sediment records as required under subsection (2) of this section must be
3190 furnished upon request, and made available at all reasonable times for inspection, by any officer,
3191 employee, or representative of the department who is designated by the director.

3192 (4) All sediment records as required in this section shall be maintained for a period not
3193 less than ten years after the issuance, modification, or renewal of the applicable permit, or
3194 administrative order, or certification, or cleanup site delisting under WAC 173-204-540(6),
3195 whichever is greater.

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3197 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
3198 019 (Order 90-41), § 173-204-610, filed 3/27/91, effective 4/27/91.]

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3202 **WAC 173-204-620 Severability.** If any provision of this chapter or its application to
3203 any person or circumstance is held invalid, the remainder of this chapter or the application of the
3204 provision to other persons or circumstances shall not be affected.

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3206 [Statutory Authority: Chapters 43.21C, 70.105D, 90.48, 90.52, 90.54 and 90.70 RCW. 91-08-
3207 019 (Order 90-41), § 173-204-620, filed 3/27/91, effective 4/27/91.]

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